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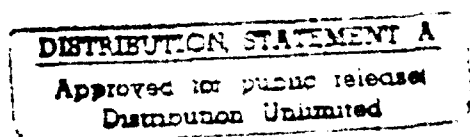
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# The Economic Impacts of Desert Shield/Desert Storm Deployments on Local Communities

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## **Executive Summary**

### **THE ECONOMIC IMPACTS OF DESERT SHIELD/DESERT STORM DEPLOYMENTS ON LOCAL COMMUNITIES**

In August 1990, Iraqi forces invaded Kuwait and set in motion what became the largest deployment of combat forces since World War II. Operation Desert Shield began less than a week later, with the deployment of U.S. and United Nations Allied forces to the Persian Gulf. The operation reached its peak in late February, by which time more than 500,000 U.S. military personnel were deployed, most from major military bases in the United States.

The large-scale movement of personnel from U.S. bases raised concerns that the deployments were significantly affecting local economies near some of the larger military bases. That concern led the Department of Defense, through the Office of Economic Adjustment, to examine the economic impacts of Operation Desert Shield/Desert Storm deployments on seven military installations: Fort Stewart, Ga.; Camp Lejeune and Fort Bragg N.C.; Fort Hood, Tex.; Twentynine Palms and Camp Pendleton, Cal.; and Fort Campbell, Ky. We examined the economic conditions before, during, and after deployments from each of these locations.

We found that the deployment of troops to the Persian Gulf had an adverse effect on the level of economic activity in all seven of the selected areas. The severity of that effect varied from site to site and was found to be largely dependent on such factors as the local effects of the national economic downturn and the percentage of area earnings attributable to military jobs. While each location displayed some unique impacts, several key conditions existed at all the sites:

- Many local enterprises were only moderately impacted by the deployments. However, businesses that depended on sales to military households, particularly those that depended on single military personnel, were more severely affected by lost sales.
- The fact that almost two-thirds of all military salaries are earned by married personnel tended to reduce the economic effect of the deployments because most of their salaries were sent home to families living on or near the base.

We estimate that about 70 percent of all earnings lost as a result of deployment are attributable to single military personnel.

- The financial condition of some business enterprises, particularly their ability to repay loans, deteriorated as a result of reduced sales attributable to deployment.
- Apartment and house vacancies increased sharply as single military personnel living off base and some families of deployed troops left the area temporarily.
- The largest effect on public sector finances was the loss of sales tax revenue, the average decline was almost 8 percent.
- Only at Fort Stewart did deployment have a severe impact on employment levels. There, declines in retail trade and services exceeded 10 percent. Although the other areas experienced some slight declines, particularly in the retail sales sector, the average decline was less than 3 percent. However, had the deployment period been extended beyond the 6-month duration, we would have seen more severe impacts on employment in all areas.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **BACKGROUND**

Within days of Iraq's 2 August 1990 invasion of Kuwait, the United States along with its coalition allies began to plan what was to become the largest deployment of combat forces since World War II. Operation Desert Shield began less than a week later, with the deployment of naval, air, and ground forces to the Persian Gulf. The operation reached its peak in late February, by which time more than 500,000 U.S. military personnel were deployed, most from major military bases in the United States.

Along with the large-scale movement of personnel from U.S. bases came the concern that the deployments were having a significant adverse impact on the local economies. This concern led the Department of Defense, through the Office of Economic Adjustment (OEA), to conduct this study aimed at assessing the economic impacts of Operation Desert Shield/Desert Storm deployments in several affected communities. As part of the analysis, OEA selected four Army installations: Fort Stewart, Ga.; Fort Hood, Tex.; Fort Campbell, Ky.; and Fort Bragg, N.C.; and three Marine Corps installations: Camp Lejeune, N.C.; and Twentynine Palms and Camp Pendleton, Cal., to assess the economic impacts of the Operation Desert Shield/Desert Storm deployments on the local communities in close proximity to those bases. In this report, we refer to the seven installations as the impacted areas. The installations selected were those that had large numbers of deployed troops and were in locations in which the base-related population represented a substantial share of the community. Collectively, these seven bases accounted for nearly one-third of deployed U.S. forces. We studied each location independently using a common methodology. In the analysis, we examined economic conditions before, during, and after deployment. This final report provides a comparative assessment of impacts experienced at these locations.

Military bases are often among the largest and most important components of the nearby local economy. Prior to the deployment of troops to the Persian Gulf, the

military-related population at the bases we studied accounted for a significant share of the local population and contributed a stable economic base to the area. As such, when these local areas experienced significant drops in population following military deployment and the temporary departure of family members, they now faced adverse impacts on local businesses. As one would expect, a substantial proportion of local businesses depend on sales to military households, and other local enterprises sell directly to the base. Since many of these enterprises are small – most have annual sales under \$2 million – they are highly vulnerable to fluctuations in business activity such as are associated with troop deployments.

One of the most significant economic effects of deployment on local communities is the reduction in the level of retail goods and services purchased by military personnel. Purchases made by unmarried personnel are lost, and while dependents of married troops who have deployed continue to purchase goods and obtain services, they do so at a somewhat lower rate for some items such as food. The loss of sales is not evenly shared by all retail and service establishments. Businesses that cater to the civilian population not associated with the military (e.g., stores focusing on the sale of agricultural products) see little impact. In fact, some enterprises in the local communities experience a temporary sharp rise in sales at the beginning of deployment because faced with severe time constraints, the Military Services purchase goods for the deploying troops directly from local merchants. However, fast-food restaurants, car dealerships, and others that especially depend on sales to the military, particularly to single personnel, experience substantial losses in sales volume. Some sales losses (such as for fast food and drinks) are permanent, while others (such as automobiles) can be regained after the troops return from the Persian Gulf.

## **SITE SELECTION**

At the height of the Persian Gulf War, the United States had more than 500,000 troops deployed. These troops included components of every Military Service. In selecting areas impacted by the deployment, we applied two criteria: to include those installations that lost half or more of all military personnel and to include locations at which 30 percent or more of the predeployment area population comprised military households.

Application of these criteria resulted in the selection of the seven bases considered for the study. Four of those bases are located in the South and three in the West. Because most of the nation's large military bases are located in those two regions, they are representative of large bases across the country.

## **APPROACH**

Several complementary approaches were applied to estimate the economic effect of large-scale troop deployment on nearby communities: surveys of local merchants and military bases; tabulations, including special computer runs of state-collected sales tax and employment records; and interviews with local officials. A detailed description of the methodologies used in this study is contained in Appendix A.

The remainder of this report presents an analysis of the role of military bases in the local area economies (Chapter 2); the impact of deployment on retail sales (Chapter 3); other business sectors, such as services and real estate (Chapter 4); jobs (Chapter 5); and local government finances (Chapter 6). Chapter 7 provides a summary of our findings, conclusions, and recommendations.

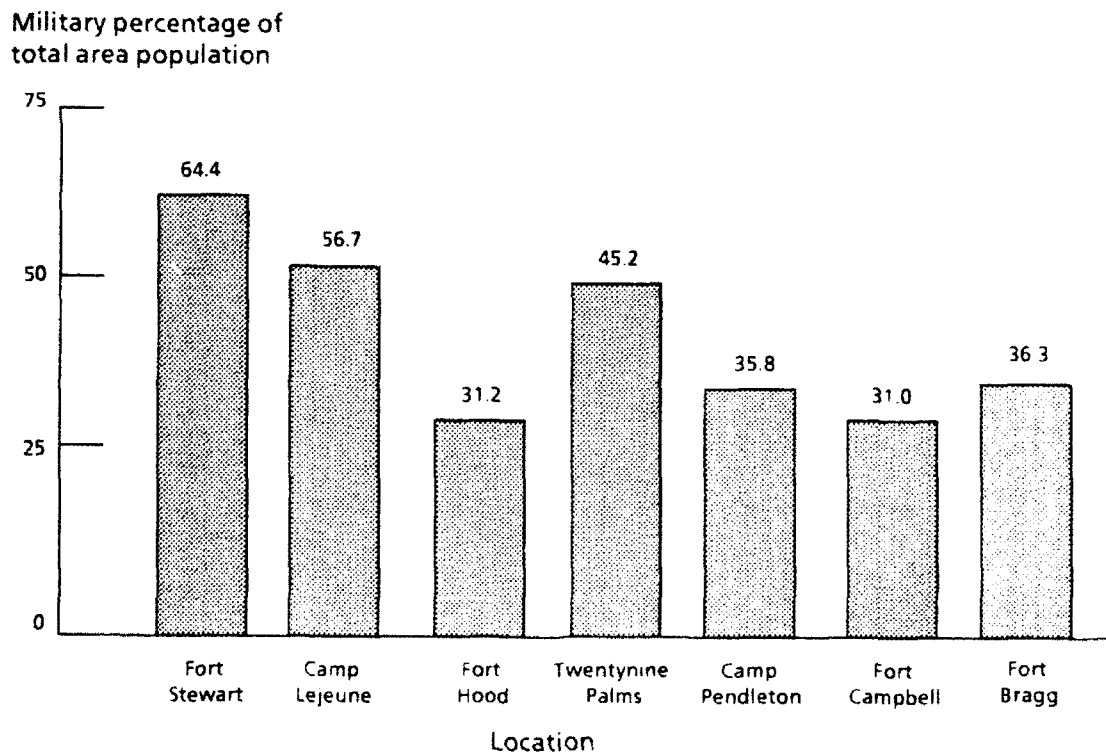
Appendix A describes the methodologies used in this study, Appendices B through E contain tables and figures supporting Chapters 2 through 5, respectively, while Appendix F contains a sample of the survey distributed to the local business enterprises.

## CHAPTER 2

### THE ROLE OF MILITARY BASES IN LOCAL AREA ECONOMIES

#### SIZE OF MILITARY PRESENCE

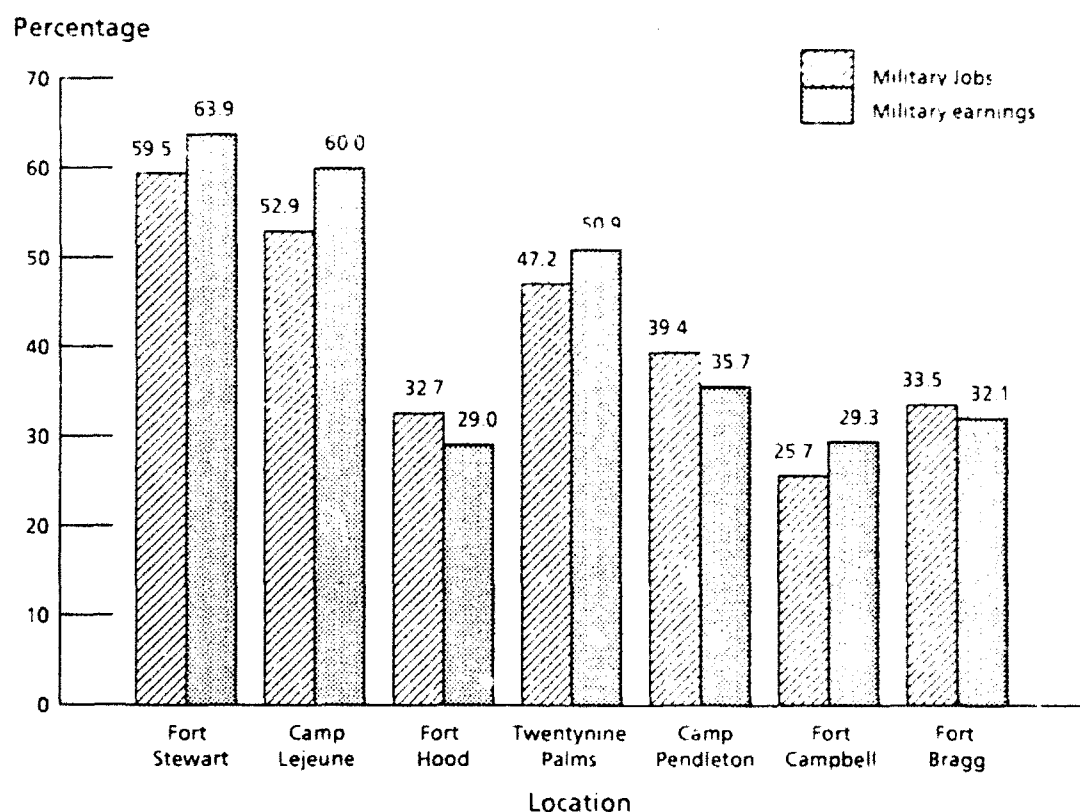
Military bases often comprise one of the largest and most important components of the local economy in the area surrounding those bases. That is certainly the case with the seven bases examined in this study. Prior to the deployment of personnel to the Persian Gulf, the military-related population (military personnel and dependents) of these bases accounted for between 31 percent and 64 percent of the local population. Figure 2-1 shows the military share of total area population for each of the seven sites examined in this study.



**Notes:** Area populations are defined as follows: Fort Stewart area = Liberty County; Camp Lejeune area = Onslow County; Fort Hood area = the Killeen-Temple Metropolitan Statistical Area (MSA); Camp Pendleton area = the city of Oceanside and Camp Pendleton Marine Base; Twentynine Palms area = the cities of Twentynine Palms, Yuca Valley, and Joshua Tree; Fort Campbell area = the Clarksville-Hopkinsville MSA; and Fort Bragg area = the Fayetteville MSA. For more detailed data, see Appendix B, Table B-1.

FIG. 2-1. MILITARY SHARE OF AREA POPULATIONS, MID-1990

Those areas that have a high percentage of military-related population also have a similarly high percentage of total area jobs associated with the base. Figure 2-2 shows the percentage of military jobs and earnings to total area jobs and earnings for each of the seven sites. In the Fort Stewart area, the military represents almost 60 percent of total area jobs and about 64 percent of its earnings. Fort Campbell showed the lowest percentage, with the military representing about 26 percent of the jobs and just over 29 percent of earnings.



**Notes:** Data are for direct jobs and earnings. Jobs and earnings for military spouses and indirect jobs are not counted as military. For more detailed data, see Appendix B, Table B-1

**FIG. 2-2. MILITARY SHARE OF AREA JOBS AND EARNINGS**

The relationship between military jobs and earnings and jobs and earnings in the private sector varied from site to site. In four of the seven locations - Fort Stewart, Camp Lejeune, Twentynine Palms, and Fort Campbell - we found that the percentage of military earnings was greater than the percentage of military jobs. This is typically the case for bases located in more rural areas and where the local economy is almost totally dependent on military outlays. At those sites, the average

per-job earnings for military personnel exceed the average per-job earnings in the private sector. In the other three locations – Fort Hood, Camp Pendleton, and Fort Bragg – we found the opposite relationship. Because the latter are located in more urban and economically diversified areas, the average earnings for military personnel are lower than for the average nonmilitary worker in the area.

## **IMPACT OF DEPLOYMENT ON LOCAL ECONOMIES**

### **Composition of Area Personal Income**

Personal income in the impacted areas can be grouped into three categories: Federal civilian payrolls; military payrolls; and civilian, non-Federal earnings. The first two categories are primarily military-base related because most Federal employees in these areas work on base. The third category is the private economy, and it includes off-base civilian workers from military households.

As shown in Table 2-1, area Federal employee income totals 4.6 percent and military income 30.1 percent of total personal income. Thus, over one-third of the area income is attributable to Federal dollars flowing into the economy. Civilian, non-Federal earnings total 44.5 percent (including earnings of military spouses), and other income, such as proprietor's earnings, interest, rents, dividends, and transfer payments totals 20.8 percent. The majority of transfer payments, such as Social Security and military retirement benefits, are Federal. As such, more than 45 percent of local area income is attributable to payments originating at the Federal level.

### **Military Earnings Prior To and During Deployment**

Annual earnings of military households, including spousal earnings in the seven impacted areas totaled \$4.7 billion in 1990, or one-third of total personal income in these areas. Almost two-thirds of these military earnings are attributed to married personnel, although those personnel account for only 53 percent of all military households (see Table 2-2). Three factors contribute to the higher married household income: earnings by spouses, housing allowances, and higher average grades. Earnings by spouses are estimated to account for 10 percent of all military household earnings. This percentage is lower than that among civilian households because fewer military spouses work (in part, because of more limited job

TABLE 2-1

## DERIVATION OF 1990 AREA PERSONAL INCOME ESTIMATES FOR ALL SITES

Category	Percentage of total area income
Federal civilian payrolls	4.3%
Other Federal employee income	0.8
Less residency adjustments (3 percent of total income)	-0.5
Subtotal area Federal income	4.6
Military payrolls	30.4
Other military income <sup>a</sup>	1.5
Less residency adjustment (3 percent of total income)	-1.8
Subtotal area military income	30.1
Civilian non-Federal earnings	44.5
Other income <sup>b</sup>	20.8
Subtotal	65.3
Total	100.0

<sup>a</sup> Excludes off-base civilian workers from military households. Their income is included in "Civilian non-Federal earnings."

<sup>b</sup> Proprietors in earnings, rents, interest, dividends, and transfer payments.

opportunities near military facilities) and because a higher percentage of those employed tend to have lower paying or part-time jobs.

**TABLE 2-2**  
**ESTIMATED TOTAL MILITARY PERSONNEL PAYROLLS – 1990**  
**(All sites)**

Category	House-holds	Average annual earnings <sup>a</sup> (\$)	Total annual earnings <sup>a</sup> (\$ millions)	Percentage of total earnings
Single	96,835	\$17,371	\$1,682.1	35.9%
Married	111,186	22,351	2,485.1 <sup>b</sup>	53.0
Subtotal	208,021	20,033	4,167.2	88.9
Married – spouse working <sup>a</sup>	(46,273)	10,105	467.6	10.0
Second job holders <sup>a</sup>	(8,676)	5,775	50.1	1.1
Total	208,021	—	—	100.0

**Notes:** Numbers in parenthesis are not included in the total. For more detailed data, refer to Appendix B (Table B-3).

<sup>a</sup> Estimated.

<sup>b</sup> Includes housing allowances.



## CHAPTER 3

### IMPACT OF DEPLOYMENT ON RETAIL SALES

#### POPULATION EFFECTS

The total population in the impacted areas declined considerably during the peak deployment period. Most of the decline was due directly to the deployment of troops. However, spouses and families of some deployed troops also left temporarily. In Onslow County, the site of Camp Lejeune, the population fell by about 42,000 or 28 percent of the total population. In Fort Hood, Fort Campbell, and Twentynine Palms, between 11 percent and 12 percent of the local population left the area, most to the Persian Gulf (see Table 3-1).

TABLE 3-1

#### POPULATION DECREASE RESULTING FROM DEPLOYMENT

Installation	Population decrease			Percentage of impacted area population
	Military <sup>a</sup>	Civilian	Total	
Fort Stewart	11,966	2,640	14,606	28.2%
Camp Lejeune <sup>b</sup>	41,587	354	41,941	28.0
Fort Hood	25,000	6,380	31,380	12.3
Twentynine Palms	4,387	605	4,992	10.8
Camp Pendleton	21,000	3,434	24,434	14.8
Fort Campbell	18,076	1,584	20,360	12.0
Fort Bragg	30,500	6,525	37,025	13.3
Average	21,788	3,075	174,738	17.1

<sup>a</sup> Includes military families living outside the impacted area.

<sup>b</sup> This includes both the first and second deployments.

#### INCOME EFFECTS

Deployment resulted in an aggregate loss of income potentially spent locally of over \$800 million (see Table 3-2). About 70 percent of the potential loss was

attributable to single personnel deployed to the Persian Gulf. Approximately 18 percent was attributed to married families of deployed troops who remained in the impacted areas but reduced their consumption, and the balance to families who left the area temporarily. Overall, the estimated loss to the local economies represented about 11 percent of total area earnings during the deployment period. The average potential loss per deployed person is estimated at about \$5,300 for the 6-month deployment period. The most substantial losses were to the economy of Liberty County (Fort Stewart), while Cumberland County (Fort Bragg) was the least affected.

**TABLE 3-2**

**TOTAL IMPACT OF DEPLOYMENTS ON EARNINGS AND LOCAL PURCHASES**

Category	Number	Estimated total loss to the local economies Sep. 1990 – Feb. 1991 (\$ millions)	Percentage of total loss by category
Single deployed	70,130	\$560.7	69.5%
Married deployed	82,386	142.7	17.7
Subtotal	152,516	703.4	87.2
Married — spouse left area temporarily <sup>a</sup>	7,517	77.5	9.6
Lost spouse earnings <sup>b</sup>	1,488	9.3	1.2
Lost earnings of deployed personnel <sup>c</sup>	6,331	16.5	2.0
Total	—	806.7	100.0

**Note:** Statistics in this table are estimated, as no direct data are available. For more detailed data, refer to Appendix B (Table B-4).

<sup>a</sup> Married personnel who temporarily left the area after spouse was deployed. It is assumed spouses with civilian jobs are less likely to leave than those not holding jobs.

<sup>b</sup> Earnings lost as a result of leaving job (estimated).

<sup>c</sup> Lost earnings of deployed personnel who held a second job (estimated).

## ESTIMATING RETAIL SALES TO MILITARY HOUSEHOLDS

As shown in Table 3-3, personal income in the seven areas prior to deployment totaled \$14.2 billion and retail sales, \$5.9 billion. Thus, about \$2 out of each \$5 in personal income was allocated to retail sales. On the basis of their income, we would

expect military households to purchase one-third of all retail goods in the impacted areas. This estimate has two adjustments: single military personnel consumption is above average as they have a higher propensity to spend their income because their housing is provided by the base, and military households spent a considerable share of their retail dollars (about one-third) on purchases at on-base facilities, mostly the post exchange and the commissary. Taking these factors into account, we estimate that 22 percent of off-base (private market) purchases within the impacted areas are by military households.

**TABLE 3-3**  
**ESTIMATED SALES TO MILITARY HOUSEHOLDS**  
**(\$ millions)**

Category	Sales volume and percentage
Estimated area income	\$14,185.7
Estimated total retail sales	5,883.5 <sup>a</sup>
Expected military personnel purchases	1,827.9
Percentage of military retail of total retail purchasing power	33.0%
Plus: Adjustment for single personnel	\$133.6
Less: PX and commissary purchases	637.1
Purchases by military in private economy	
Annually	1,273.6
Monthly	106.1
Percentage of private economy retail sales attributable to military sales — total	21.6%

<sup>a</sup> These retail sales include retail purchases by business enterprises as well as households. Therefore, the potential military share is probably somewhat higher than shown in this table.

## EFFECT ON AGGREGATE SALES

One of the most significant economic effects of deployment on local communities is the reduction of retail purchases by military personnel. Deployed unmarried personnel are not available to make local purchases, and while dependents of married

deployed troops continue to purchase goods, they do so at a somewhat lower rate for some items such as food. The loss of sales is not evenly shared by all retail establishments. Businesses that cater to the civilian population not associated with the military (e.g., stores focusing on the sale of agricultural products) should see little impact. A few experienced a temporary sharp rise in sales at the time of deployment when the Army purchased goods locally for troops being sent overseas. Others, such as fast-food restaurants or car dealerships that especially depend on sales to the military, particularly to unmarried personnel, would expect substantial losses in sales volume.

Some of the sales losses, such as for food and drink, are permanent. Other reductions, including purchases of automobiles or electronic equipment, may be only temporary. Deployed personnel had few opportunities to spend their earnings, and most returned with accrued savings. Therefore, a resurgence of buying could have been expected following the return of deployed troops.

Because deployment was concurrent with the national economic downturn, which officially began in the third quarter of 1990, we must distinguish between national/regional and deployment-related causes for declines in purchasing. To determine how much to adjust for impact independent of deployment, we compared local sales changes with state totals. Changes in local sales activity that exceed state changes are likely to be related to deployment.

As shown in Table 3-4, sales as a percentage of the state total declined in each of the impacted areas, with an average decline of 7.1 percent. The Killeen Metropolitan Statistical Area, and the Twentynine Palms area experienced the largest declines in sales compared to the predeployment period. Impacted area sales in the predeployment period as a percentage of state total sales vary from a small fraction in Twentynine Palms to 2.9 percent in the Fayetteville MSA, with the average share about 1 percent.

The rise in sales in the postdeployment period was almost twice the level of the decline. These data suggest that "pent-up demand" was more substantial than one would have expected. However, this upward movement appeared to be temporary as preliminary data from mid-1991 suggest that the sales spurt pattern slowed reflecting the national slowdown.

TABLE 3-4

## LOCAL SALES AS A PERCENTAGE OF STATE SALES TOTAL

Impacted area	Pre-deployment (1/90 – 8/90)	Deployment (9/90 – 2/91)	Change	Post-deployment (3/91 – ) <sup>a</sup>	Change <sup>b</sup>
Liberty Co. (Fort Stewart)	0.238% <sup>c</sup>	0.226% <sup>d</sup>	– 5.0%	.263%	16.4%
Jacksonville MSA (Camp Lejeune)	0.990	0.940	– 5.1	1.060	13.3
Killeen MSA (Fort Hood)	0.380	0.330	– 13.2	N/A	N/A
Twentynine Palms area	0.023	0.020	– 13.0	N/A	N/A
City of Oceanside (Camp Pendleton)	0.309	0.290	– 6.1	N/A	N/A
Montgomery Co. (Fort Campbell)	1.730	1.660	– 4.0	1.870	12.7
City of Fayetteville (Fort Bragg)	2.280	2.160	– 5.3	2.340	8.3
Fayetteville MSA (Fort Bragg)	2.870	2.730	– 4.9	2.980	9.2
Average	—	—	– 7.1	—	12.0

<sup>a</sup> Ending period varies between May 1991 and August 1991.<sup>b</sup> Postdeployment compared to deployment.<sup>c</sup> January – September 1990.<sup>d</sup> October 1990 – February 1991.

## IMPACT ON RETAIL SALES BY CATEGORY

The impact of deployment on off-base retail sales differs by the type of goods sold. For example, one would anticipate fast-food places, restaurants, bars, and automotive product stores to have reduced sales because when located close to a base, they tend to serve military personnel, particularly those who are single. Food stores that cater to married military personnel can also expect fewer sales because food consumption is reduced. On the other hand, deployment is unlikely to have a significant impact on large department stores since they are typically located at some distance from military facilities.

The variety and price of goods available at the PX and other nonappropriated fund (NAF) facilities also affects off-base purchases prior to and during deployment. Large military bases, which have fast-food chains and specialty stores, tend to have high per capita sales, and those sales reduce off-base consumption.

Monthly or quarterly retail trade data grouped by category were available from four of the seven impacted areas – Fayetteville MSA, Jacksonville MSA, City of Killeen, and cities of Oceanside and Carlsbad – and are shown in Table 3-5. (The cities of Oceanside and Carlsbad are considered one area since both are affected by deployment from Camp Pendleton.) Average sales in the four areas fell in every category, with the exception of general merchandise (department stores). Eating and drinking establishment sales declined by 8.5 percent and food store sales by 9.2 percent. The sharpest declines occurred in the building materials and furniture categories, but those declines were only partially attributable to deployment. As shown in Table 3-6, the state of California experienced reductions during the deployment period compared to sales a year earlier in these categories, but the reductions were substantially less than observed in the impacted communities. These sales data suggest that military families reduced their furniture and appliance purchases more than civilians. Similarly, building-sector activity was reduced beyond the level that could be explained by the weak national economy, indicating a direct linkage to deployment.

The average retail sales decline compared with sales in 1990 was 8.3 percent. Since inflation during the period was about 4 percent, the real sales decline was closer to 12 percent. In most cases, however, these percentages are based on sales data from the later phases of deployment (January and February 1991). As such, the percentage impact may be somewhat greater than the average over the 6-month period. As will be shown in other parts of this report, local merchants indicated sales losses to be most substantial during later phases of the deployment.

#### **EXPECTED AND ACTUAL RETAIL SALES REDUCTIONS**

On the basis of lower military earnings available to be spent locally, one would have expected private-sector sales to be 11 percent lower than they would have been in the absence of deployment (see Table 3-6). The sharpest losses expected would have been in the Camp Lejeune area (27 percent) in the period following the brief second deployment, with Fort Stewart (18 percent) also absorbing substantial losses.

TABLE 3-5

**PERCENTAGE CHANGE IN RETAIL SALES BY CATEGORY - DEPLOYMENT COMPARED  
TO PREDEPLOYMENT PERIOD**

Category	Fayetteville MSA Feb. 91/90	Jacksonville MSA Feb. 91/90	City of Killeen 1 <sup>st</sup> qtr. 91/90	City of Oceanside 4 <sup>th</sup> qtr. 90/89	City of Carlsbad 4 <sup>th</sup> qtr. 90/89	California 4 <sup>th</sup> qtr. 90/89	Average <sup>a</sup>
Building materials	-23.1%	-32.2%	-22.6%	6.7%	-31.6%	-7.7%	20.6%
General merchandise	7.6	9.4	4.7	0.0	-19.4	0.1	4.6
Food stores	2.2	-20.9	-11.4	-6.2	9.5	3.8	-9.2
Automotive products	-3.1	-24.5	-3.2	5.4	-3.7	-6.2	-5.8
Apparel	-10.1	-10.9	0.0	-2.2	7.1	4.3	-1.7
Furniture	-24.7	N/A	-5.8	-35.9	-54.5	-9.8	-30.2
Eating and drinking	-0.6	-25.1	-5.5	0.0	-11.3	2.4	-8.5
All retail	-3.6	-18.6	-9.3	-4.8	-5.2	1.4	-8.3

Source: Special computer runs except for California, where sales data are from published state records.

Note: N/A = not applicable.

<sup>a</sup> Excluding state of California.

These estimated reductions were compared with actual sales reductions in comparison to the previous year based on state sales records. In one instance (Fort Stewart) sales losses were higher than predicted utilizing changes in income. In two instances (Fort Bragg and Fort Hood), losses were as expected. In the five other impacted areas, actual losses were somewhat below expected levels.

What explains somewhat lower than anticipated sales losses in several impacted areas? Several factors probably contributed to the disparity. At Camp Lejeune, the second deployment was very short. Most troops returned before the full impact was absorbed by the local economy. Near Fort Campbell, the impact was distributed over two counties, and in Oceanside, some of the sales reductions were absorbed in the nearby city of Carlsbad. An additional factor may have been the positive impact of the reserve troops who replaced, to some extent, deployed troops.

Reductions based on state sales records are also compared in Table 3-6 to losses as stated by local business enterprises who responded to the survey. The average reported loss from surveys was 17 percent, or 70 percent above the level of reduced

TABLE 3-6

## EXPECTED AND ACTUAL RETAIL SALES REDUCTIONS ATTRIBUTABLE TO DEPLOYMENT

Impacted area	Expected private-sector sales reductions from lower local disposable earnings	Reduction from previous year based on state sales tax records <sup>a</sup>	Reduction from previous year based on surveys
Fort Stewart (Liberty Co.)	18%	21%	37%
Camp Lejeune <sup>b</sup> (Jacksonville MSA)	27	19	37
Fort Hood (Killeen-Temple MSA)	8	8	13
Twentynine Palms area	10	7	N/A
Camp Pendleton (City of Oceanside)	7	5	9
Fort Campbell (Christian Co.)	7	N/A	8
Fort Campbell (Montgomery Co.)	7	4 <sup>c</sup>	5
Fort Bragg (Cumberland Co.)	5	5	13
Average	11	10	17

<sup>a</sup> These percentages differ from reductions based on local sales as a percentage of state totals. Sales are compared with sales for the previous year to be consistent with survey methodology.

<sup>b</sup> Second deployment.

<sup>c</sup> Compared with state change for the same period.

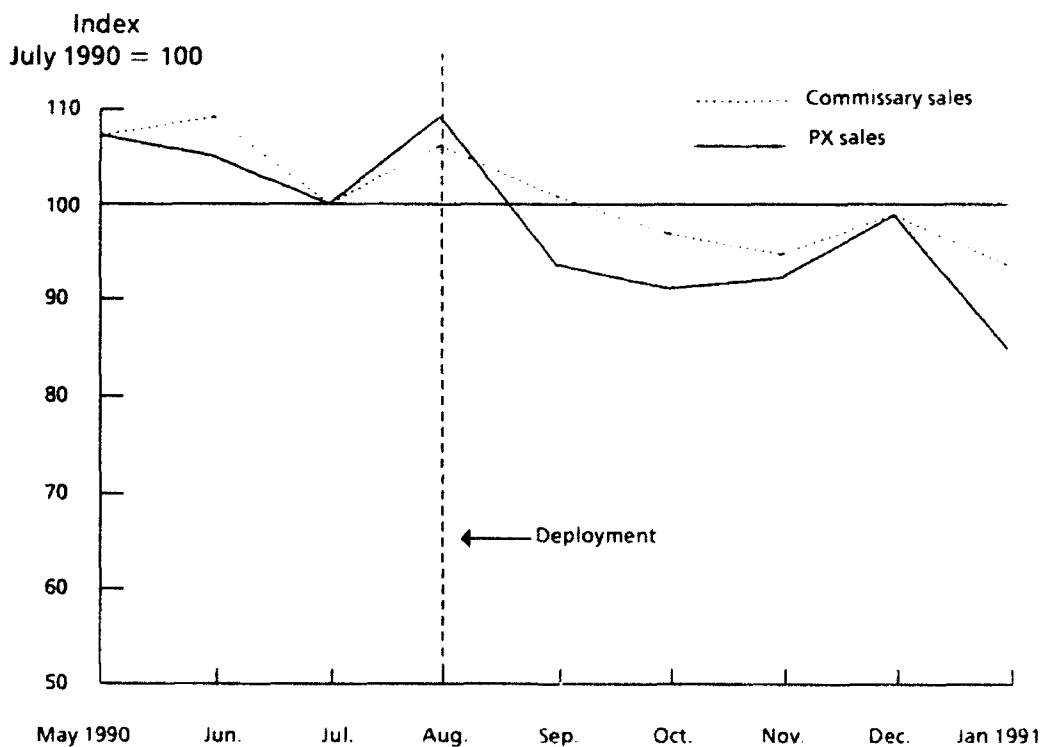
sales based on state tax returns. The most likely explanation for the deviation is that those enterprises responding to the survey were not representative of all retail business in the impacted areas. Our review of the responses by zip code indicates that more respondents were located near the base than the average businesses within the impacted areas. Since the correlation between place of residence and purchases of retail goods is high, one would expect respondents closer to the base than other enterprises also to have higher losses. In addition, one could expect retail stores with substantial losses to be somewhat more likely to respond than others affected only marginally, although many respondents stated few if any sales were to military households. We have no reason to suspect the validity of the responses, but our respondents were not necessarily random samples of retail enterprises.



## IMPACT OF DEPLOYMENT ON ON-BASE SALES

To estimate the impact of deployment on facilities selling goods and services to military personnel on base, records from PX, commissary, and other NAF facilities were obtained from six Army and Marine Corps facilities. Actual sales were converted to an index value, with July 1990 set at 100. This procedure allowed us to compare changes on a monthly basis among the facilities.

As shown in Figure 3-1 and Appendix C (Table C-1), PX sales in the predeployment period exceeded the July 1990 average each month. Sales were particularly brisk during August when deployment was initiated. In the following months, sales were consistently below the July 1990 average. A comparison of sales levels showed those in January 1991 declined more than 10 percent from those in July 1990.



Note: For more detailed data, see Appendix C (Tables C-1 and C-2)

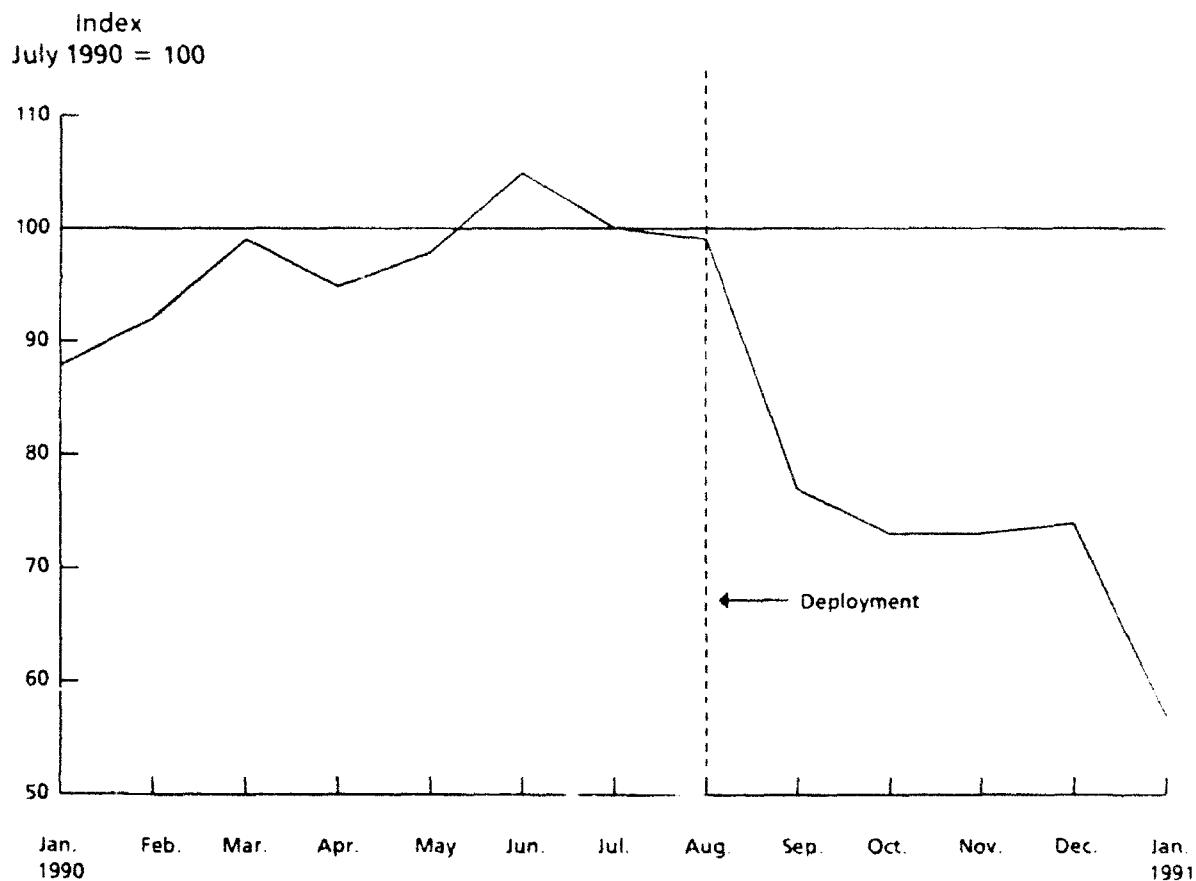
FIG. 3-1. COMMISSARY AND PX SALES COMPARISON

Commissary sales followed the same general pattern on PX sales, but the decline during the deployment period was more modest – about 4 percent to 5 percent below July 1990 levels (see Figure 3-1). The relatively minor impact of deployment on PX and commissary sales can be attributed to several factors. First, reserve troops that partially replaced deployed personnel were stationed on base, encouraging sales. Second, retired personnel who represent a substantial share of all PX and commissary sales may have increased their purchases in response to shorter lines. Third, most PX and commissary sales are to married personnel and their families. Those purchases continued although consumption may have been reduced modestly.

In contrast to PX and commissary activities, sales associated with other NAF facilities that include fast-food franchises declined sharply (see Figure 3-2). Between September 1990 and January 1991, sales were less than 75 percent of the July 1990 average. In January 1991, sales were only two-thirds of the 1990 level. Because single personnel housed on base tend to purchase fast food, deployment had a sharp adverse effect on these facilities.

#### **IMPACT ON SALES TO MILITARY HOUSEHOLDS – SURVEY RESULTS**

About one out of four respondents had no sales to military households prior to deployment, and for about one out of four businesses, those sales represented only 20 percent or less of their total sales. Following deployment, the percentage of businesses who sold 20 percent or less to the military increased because many enterprises with a high ratio of sales to the military saw their sales volume reduced. An estimated 28 percent of retail sales were made to the military prior to deployment; following deployment, that number declined to 21 percent (see Table 3-7). That decrease suggests that deployment reduced retail sales to military households by about 25 percent. Although services depend more on military households than do retail stores, their gross receipts to military households declined by only 18 percent following deployment, while real estate rentals declined by 14 percent, and the “all others” category, by 19 percent. Overall, survey results indicate that the average sales decline to military households during the deployment period was 18 percent, with retail stores hit the hardest. The percentage of sales to the military prior to deployment does not appear to differ substantially by type of business, with the exception of real estate rentals.



Note: For more detailed data, see Appendix C (Table C-3).

FIG. 3-2. OTHER NONAPPROPRIATED FUND ACTIVITY SALES COMPARISON

The same pattern is observed when examining sales on a monthly basis. In July 1990, roughly half the business establishments stated sales increases, the balance decreases (see Table 3-8). These proportions changed during each month of deployment, with the proportion showing increases declining each month with the exception of December 1990. By January 1991, only 18 percent of the respondents stated increases, and 82 percent stated decreases. Over one-half indicated sales reduction of 20 percent or more while only 4 percent noted sales rises of over 20 percent.

**TABLE 3-7**  
**PERCENTAGE OF SALES TO MILITARY PERSONNEL AND DEPENDENTS**  
**(Survey results)**

Sales area	None (%)	1% to 20%	21% to 40%	41% to 60%	Over 60%	Estimated average
<b>August 1990<sup>a</sup></b>						
Retail	17%	34%	19%	12%	17%	28%
Services	20	22	19	16	22	33
Real estate rentals	16	4	11	5	64	56
All others	40	15	10	11	24	31
<b>Average</b>	<b>23</b>	<b>23</b>	<b>16</b>	<b>13</b>	<b>24</b>	<b>32</b>
<b>January 1991<sup>b</sup></b>						
Retail	13	53	18	7	9	21
Services	23	33	15	12	17	27
Real estate rentals	18	11	13	9	50	48
All others	37	24	10	9	19	25
<b>Average</b>	<b>22</b>	<b>36</b>	<b>15</b>	<b>9</b>	<b>18</b>	<b>26</b>

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Notes:** January 1991 data were not available for Fort Stewart; therefore, October 1990 data were used. January 1991 data were not available for Fort Hood; therefore, December 1990 data were used. For a graphical display, see Appendix B (Figure B-7). Percentages may not add to 100 percent because of rounding.

<sup>a</sup> A total of 633 businesses responded to this question.

<sup>b</sup> A total of 634 businesses responded to this question.

**TABLE 3-8**  
**ESTABLISHMENTS REPORTING CHANGES IN SALES**  
**(Survey results)**

Time interval	Percentage of businesses reporting <sup>a</sup>				Number of responses
	Decrease	Increase	20% or more decrease	20% or more increase	
June 1990 compared to June 1989 <sup>b</sup>	53%	47%	17%	24%	88
July 1990 compared to July 1989 <sup>b</sup>	53	47	17	10	87
August 1990 compared to August 1989	64	36	26	8	450
September 1990 compared to September 1989	73	27	35	7	474
October 1990 compared to October 1989 <sup>c</sup>	77	23	37	6	471
November 1990 compared to November 1989 <sup>d</sup>	80	20	43	6	425
December 1990 compared to December 1989 <sup>d</sup>	79	21	46	6	443
January 1991 compared to January 1990 <sup>e</sup>	82	18	55	4	406

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** For a graphical display, see Appendix B (Figures B-3 and B-4).

<sup>a</sup> Does not include those businesses reporting no change.

<sup>b</sup> June and July include only Fort Stewart and Fort Hood.

<sup>c</sup> Deployment completed.

<sup>d</sup> November and December include all locations except Fort Stewart.

<sup>e</sup> January includes all locations except for Fort Stewart and Fort Hood.

## **DIRECT SALES TO MILITARY INSTALLATIONS**

Approximately one out of every six enterprises responding to the survey sold goods or services directly to the military base. Retail businesses were the most likely to sell directly. Of 141 respondents, 22 percent sold goods directly in August 1990. Among the group of all direct sellers, three out of four had annual sales of less than \$300,000 (monthly sales of \$25,000 or less). Only 11 businesses had annual sales in excess of \$600,000 (\$50,000 per month).

At the peak of deployment, sales activity decreased and the number of establishments having sales in excess of \$300,000 per annum dropped from 17 in August 1990 to 9 in January 1991. Although the number of businesses without any direct sales increased by only four during the deployment period, the overall decline in sales volume was probably attributable to deployment. Although respondents from each impacted area indicated reduced sales during deployment, direct base sales estimates in some instances differed from survey responses.

## **FINANCIAL CONDITION OF BUSINESSES**

One of the greatest concerns following deployment was that some local business enterprises, facing a combination of an economic downturn and deployment, would have problems remaining financially viable. Therefore, the survey included questions on the financial status of respondents.

Approximately one out of four respondents indicated they had problems meeting payments, with real estate rentals hardest hit. About half the respondents (other than those in real estate rentals) indicated they had no problem in meeting loan payments. We have not calculated the extent to which our respondents had greater financial problem than business concerns that had no sales to the military. However, comments from local merchants indicated that those with high sales volume to military personnel prior to deployment were especially hard hit. That impact is most apparent with real estate rentals, although the problem was temporary. When troops returned, rental demand increased sharply.

## CHAPTER 4

### IMPACT OF DEPLOYMENT ON SERVICE AND OTHER NONRETAIL BUSINESSES

#### CHANGES IN GROSS RECEIPTS – SERVICE ENTERPRISES

In comparison to gross monthly receipts in the previous year, each month of the troop deployment saw greater percentage reduction. For example, 3 percent of all establishments reported 40 percent declines in August 1990, while 13 percent reported 40 percent declines in January 1991 (see Table 4-1).

**TABLE 4-1**  
**CHANGE IN GROSS RECEIPTS DURING PERIOD  
OF DEPLOYMENT FOR SERVICE ENTERPRISES**

Change	August 1990 (percentage)	January 1991 (percentage)
Increase over 40%	2%	1%
Increase 21% to 40%	5	3
Increase 1% to 20%	19	10
No change	34	23
Decline 1% to 20%	25	21
Decline 21% to 40%	13	27
Decline over 40%	3	13

*Note:* For more detailed data, see Appendix D (Table D-1).

The percentage of enterprises showing declines of over 20 percent rose from 16 percent in August 1990 to 40 percent in January 1991. Concurrently, the percentage showing an increase or no change fell from 60 percent in August 1990 to 37 percent in January 1991. These data suggest some weakening in gross receipts prior to deployment. Nonetheless, only 4 out of 10 service enterprises showed a decline in mid-1990, compared to 6 out of 10 in early 1991. Most of the decline in

service enterprise sales during the deployment is attributable to reduced purchasing by military households.

#### CHANGES IN GROSS RECEIPTS – OTHER ENTERPRISES

The category of “other enterprises” includes businesses other than retail trade and services. As such, those enterprises include wholesale trade, transportation, utilities, manufacturing, and real estate rentals. As shown in Table 4-2, the percentage of businesses showing declines of 40 percent or more increased sharply from 9 percent in August 1990 to 31 percent in January 1991.

**TABLE 4-2**  
**CHANGE IN GROSS RECEIPTS DURING DEPLOYMENT PERIOD**  
**FOR NONRETAIL, NONSERVICE ENTERPRISES**

Change	August 1990 (percentage)	January 1991 (percentage)
Increase over 40%	1%	1%
Increase 21% to 40%	3	3
Increase 1% to 20%	17	9
No change	34	22
Decline 1% to 20%	23	16
Decline 21% to 40%	14	19
Decline over 40%	9	31

*Note:* For more detailed data, see Appendix D (Table D-2).

The percentage of businesses indicating no change or increased sales declined to 55 percent in August 1990, to 35 percent 5 months later. Even prior to deployment, very few business enterprises (4 percent of the total) had gains in excess of 20 percent, while 23 percent showed a decline of 21 percent or more, a clear indication that activity was below the level of the previous year. Following deployment, half of all enterprises responding to the survey had losses of 21 percent or more.

The highest proportion of businesses reporting severe losses following deployment were real estate rentals. Manufacturing and utility enterprises showed fewer losses, and those losses were related primarily to the economic downturn.



## IMPACT OF DEPLOYMENT ON HOUSING

Deployment affected the housing market within the impacted areas both directly and indirectly. Substantial numbers of units were vacated by single personnel renting off-base housing and by married personnel whose dependents left the area temporarily following deployment. A few families also had problems meeting their rent payments following deployment of their spouses.

No systematic surveys were conducted to determine the extent of this problem. The reduction in occupied units was estimated by several methods, the most prevalent of which was the use of local utility records. In some instances, utility disconnections attributable to military personnel could be disaggregated from others. In several jurisdictions, local real estate groups canvassed their members, but no independent verification of the utility estimates was undertaken to determine whether respondents were representative of all rental property owners.

As shown in Table 4-3, the reduction in the number of occupied units varied from nearly 5,000 in Killeen to less than 200 in the city of Twentynine Palms. The highest reported reductions as a percentage of total housing stock were in the city of Hinesville, followed by the city of Killeen. Also shown in Table 4-3 is the rise in electricity connections following the return of deployed troops. While this information is limited to two sites, the correlation of electrical connections and troop movement indicates the effect on housing was primarily due to the war and not the national economic downturn occurring at the same time.

TABLE 4-3

## IMPACT OF DEPLOYMENT ON OCCUPIED HOUSING UNITS

Impacted Area	Deployment period change in housing units occupied Aug. 1990 – Feb. 1991	After deployment change in housing units occupied Feb. 1991 – May 1991
City of Hinesville <sup>a</sup> (Fort Stewart)	- 2,516	N/A
Onslow County <sup>a</sup> (Camp Lejeune)	- 1,557	N/A
City of Killeen <sup>b</sup> (Fort Hood)	- 2,984	N/A
City of Copperas Cove <sup>b</sup> (Fort Hood)	- 1,213	N/A
Twentynine Palms area <sup>b</sup>	- 191	130
City of Oceanside <sup>c</sup> (Camp Pendleton)	- 1,338	N/A
Cumberland County <sup>b</sup> (Fort Campbell)	- 1,768	N/A
Christian County <sup>b</sup> (Fort Campbell)	- 539	839
Total	- 12,106	N/A

<sup>a</sup> Survey by real estate organization.

<sup>b</sup> Electric connections from local utility records.

<sup>c</sup> Survey by City Housing Office.

## **CHAPTER 5**

### **IMPACT OF DEPLOYMENT ON JOBS**

#### **IMPACT OF DEPLOYMENT ON LOCAL UNEMPLOYMENT**

Reduced economic activity typically leads to higher unemployment. Therefore, one would expect that the reduced purchases of goods and services attributable to troop deployment would result in fewer jobs. Deployment also reduces somewhat, the size of the available local labor force because military personnel holding second (civilian) jobs have to give up those jobs temporarily. In addition, some spouses working in the civilian economy leave the area for the duration of the deployment. However, because military personnel and their spouses are expected to return to these jobs, they are unlikely to be taken by others remaining in the area. Fewer jobs without a concurrent reduction in the labor force leads to higher unemployment rates. Thus, one would expect the number of jobless to rise, compared to state levels during the troop deployment.

As shown in Table 5-1, unemployment rates in impacted areas prior to deployment exceeded the state averages in four out of five sites. The exception to this pattern is the Jacksonville area, where unemployment prior to deployment was an exceptionally low 3.5 percent. Impacted areas tend to have above-average unemployment because spouses of military personnel provide a large labor pool. Spouses frequently have problems finding jobs and they usually compete with other spouses for the limited job openings.

Average unemployment in the impacted areas prior to deployment was 5.2 percent, compared to 4.8 percent at the state levels. Following deployment, unemployment rates in the impacted areas rose by 1.4 percentage points, to 6.6 percent. Because of the national economic downturn, unemployment also increased at the state level but only by 0.7 percent, or one-half the impacted areas' average. Therefore, it is reasonable to assume that one-half the increase in unemployment, or about 0.7 percent, was attributable directly to the deployment, with the balance associated with other factors, including a reduction in manufacturing jobs. In the postdeployment period, unemployment in the impacted

TABLE 5-1

**LOCAL UNEMPLOYMENT RATES COMPARED WITH THAT OF THE STATES**  
(Percent)

Impacted area	Predeployment			Deployment unemployment			Postdeployment		
	Local	State	Diff.	Local	State	Diff.	Local	State	Diff.
Liberty Co. (Fort Stewart)	5.5%	5.1%	7.3%	7.9%	6.2%	21.5%	6.1%	5.6%	8.2%
Jacksonville MSA (Camp Lejeune)	3.5	3.7	-5.7	4.9	4.7	4.1	5.7	6.1	-7.0
Killeen-Temple MSA (Fort Hood)	6.9	6.2	10.1	7.4	6.3	14.9	6.8	6.5	4.4
Montgomery Co. (Fort Campbell)	5.7	5.1	10.5	7.3	5.7	21.9	7.8	6.3	—
City of Fayetteville (Fort Bragg)	4.5	3.7	17.8	5.7	4.7	17.5	6.6	6.1	7.6
Average	5.2	4.8	7.7	6.6	5.5	16.7	6.6	6.1	7.6

Note: Diff. = difference.

area remained unchanged compared to the deployment period (a rise in Jacksonville MSA, Fayetteville MSA, and Montgomery County was offset by declines in Liberty County and the Killeen-Temple MSA). Unemployment at the state level, however, rose by 0.6 percent, to 6.1 percent. The state rise was due to the lingering recession during the first half of 1991. The impacted area-state unemployment rate differential observed prior to the deployment remained essentially unchanged once the troops returned. In the absence of troops returning, unemployment rates in the impacted areas would have been expected to rise at roughly the state rate.

#### CHANGE IN TOTAL EMPLOYMENT

Following deployment, total civilian employment declined following deployment in all impacted areas for which employment data are available. Declines ranged from 1.2 percent in the Killeen-Temple MSA to 4.7 percent in Liberty County (see Table 5-2). The larger the labor pool, the less employment impact of the

deployment. In the postdeployment period, employment increased in all impacted areas, but the expansion was, without exception, less vigorous than the decline. The slow recovery is due to several conditions, the most crucial of which is the lingering national economy. Employers were not anxious to expand their work force in view of the uncertain economy. In Liberty County, data are only available for March 1991.

TABLE 5-2

TOTAL CIVILIAN EMPLOYMENT BEFORE, DURING, AND AFTER DEPLOYMENT

Impacted area	Pre-deployment (1/90 – 8/90)	Deployment (9/90 – 2/91)	Percentage change <sup>a</sup>	Post-deployment (3/91)	Percentage change <sup>b</sup>
Liberty Co. (Fort Stewart)	10,189	9,712	-4.7%	9,751 <sup>c</sup>	0.4%
Jacksonville MSA (Camp Lejeune)	37,422	36,701	-2.0	37,133	1.2
Killeen-Temple MSA (Fort Hood)	90,285	89,157	-1.2	90,094	1.4
Montgomery Co. (Fort Campbell)	33,075	32,260	-2.5	32,586	1.0
Fayetteville MSA (Fort Bragg)	89,838	88,637	-1.3	89,230	0.7
Total/Average	260,809	256,467	-1.7%	258,794	0.9

<sup>a</sup> Deployment compared to predeployment.

<sup>b</sup> Postdeployment compared to deployment.

<sup>c</sup> Includes March 1991 only.

## CHANGE IN EMPLOYMENT BY SECTOR

Based on reductions in sales activity during the deployment period, one would expect employment to be reduced, particularly in the retail sales and service sectors. In fact, employment declined in the retail sales sector by 2.2 percent, or at a somewhat higher rate than the overall employment decline. Following the return of the deployed troops, retail establishment employment increased by an average of 1.9 percent (see Table 5-3). However, in the Killeen-Temple MSA, employment in retail trade continued its modest decline.

**TABLE 5-3**  
**CHANGE IN CIVILIAN EMPLOYMENT BY SECTOR**

Sector	Pre-deployment	Deployment	Percentage change	Post-deployment	Percentage change <sup>a</sup>
Retail trade	51,840	50,698	-2.2%	51,640	1.9
Services	39,403	39,251	-0.4%	39,266	0.0
Manufacturing	25,087	24,459	-2.5%	24,708	1.0
Government	62,968	62,628	-0.5%	63,987	2.2

*Note:* For more detailed data, see Appendix E (Table E-1).

<sup>a</sup> Postdeployment compared to deployment period.

In the service sector, jobs declined in three of the four impacted areas following deployment, with the Jacksonville MSA being the exception. In that MSA, service employment increased considerably during deployment, only to decline in the postdeployment period. The cause for that deviation is unknown.

Manufacturing is essentially independent of deployment. Nonetheless, a reduction in manufacturing activity that is unrelated to deployment can have an additional depressing impact on local economies. As shown in Table 5-3, manufacturing jobs declined by 2.5 percent during the deployment, increasing by 1 percent following the return of the troops. The rise (or fall) in manufacturing jobs is unlikely to be related to base activities since these jobs typically follow the national economy. However, the modest rise in the postdeployment period manufacturing jobs probably had an additional stimulus on retail trade and jobs.

In the impacted areas, Government (Federal, state, and local) employs more people than any individual private-sector organization. Therefore, fluctuation in Government employment can have a direct and significant impact on the local economy. Government jobs remained essentially stable during deployment (the decline was only marginal - 0.5 percent). However, in the postdeployment period, the number of government jobs rose considerably, primarily at the local level. As such, the public sector contributed to the postdeployment economic recovery observed

in the impacted areas. The Jacksonville and Fayetteville areas had the most substantial public-sector job growth among the impacted areas in the March through June 1991 timeframe.

## **CHAPTER 6**

### **IMPACT OF DEPLOYMENT ON LOCAL GOVERNMENT FINANCES**

The reduction in economic activity directly or indirectly attributable to the deployment of troops had an adverse impact not only on private business but on the local public sector as well. Lower sales levels hurt local merchants, but also hurt local governments that depend on sales tax revenue. Although, as the data will illustrate, revenue losses were not very large; the timing of the deployment proved to be a particular problem to localities since the parallel economic downturn also reduced state assistance.

#### **REDUCED REVENUE FROM SALES TAX**

Sales tax receipts are one of the major revenue sources for cities and counties throughout the nation. As such, lower retail sales translate directly into reduced tax revenue.

As shown in Table 6-1, each impacted area had lower than expected sales tax revenue during the period of deployment. The percentage varies from a 4.8 percent loss in Montgomery County to a 22.8 percent loss in Liberty County. The largest dollar loss was in Cumberland County where sales tax receipts fell by \$1.3 million, although this amount accounted for only 5 percent of total sales tax revenue.

#### **UTILITY SYSTEM RECEIPTS**

As a result of single personnel living off base who vacated their housing for the duration of deployment and families of deployed troops leaving the impacted area temporarily, a substantial number of telephone, water, and natural gas connections were terminated. In addition, utility usage was curtailed. These terminations frequently reduce local revenue as public utilities pay in lieu of direct taxes to localities. Some jurisdictions also impose direct charges on utilities, such as on electricity and telephone bills. These collections would also be curtailed as a result of lower usage.



TABLE 6-1

## IMPACT OF DEPLOYMENT ON SALES TAX REVENUES

Impacted area	Expected sales tax revenue (\$000)	Actual sales tax revenue (\$000)	Percentage difference
Onslow County (Camp Lejeune)	\$8,780	\$8,249	- 6.0%
City of Copperas Cove (Fort Hood)	392	350	- 10.7
City of Killeen (Fort Hood)	1,992	1,806	- 9.3
Twentynine Palms area <sup>a</sup>	135	118	- 12.6
City of Oceanside <sup>a</sup> (Camp Pendleton)	3,044	2,860	- 6.0
Cumberland County (Fort Bragg)	25,382	24,110	- 5.0
Montgomery County (Fort Campbell)	6,714	6,392	- 4.8
Liberty County <sup>b</sup> (Fort Stewart)	1,175	907	- 22.8

<sup>a</sup> Fourth quarter 1990 compared to state.

<sup>b</sup> August 1990 - December 1990 compared to State. This includes payments to cities within the County

## REAL PROPERTY TAXES

Property taxes are, in most localities and in virtually all school districts, the largest single local revenue source. Therefore, any reductions in property values directly or indirectly linked to deployment would have an adverse effect on local finances.

Some owners of rental property are assessed and taxed on the basis of gross or net income from rents. To the extent that additional vacancies were due to deployment, these owners may have had their assessed values adjusted. However, most localities would not adjust property values downward unless deployment (or other conditions reducing the value of property) extended over a long period.

Although some communities believe deployment had an adverse effect on the level of new construction and may have depressed residential and commercial

property values, these effects are difficult to quantify for two reasons. First, deployment began as the national economy receded. Therefore, some of the reduced construction activity was due to regional and national factors unrelated to the local economy. Second, it is difficult to assess the extent to which the deployment-related impact was temporary or permanent. It may well be that once the troops returned, construction that was delayed because of the uncertainty duration of the deployment may have rebounded. Savings by military personnel could, in fact, induce additional housing demand.

#### **OTHER REVENUE LOSSES**

Several communities noted tax losses attributable to deployment arose from other than reduced retail sales, utilities, or property values. For example, business travel on transit routes passing through Camp Pendleton was reduced following deployment. Operating costs for government services were not reduced but operating revenue declined. Receipts from the wholesale beer tax fell in Clarksville, Tenn. (Fort Campbell), where such a tax is a significant source of local revenue. In Twentynine Palms, the city transient occupancy tax appears to have been curtailed by deployment. Receipts from hotel and motel rooms were also reduced in several cities. However, part of the reduced lodging activity attributable to deployment was offset by the presence of reserve units. Deployment probably affected, at least marginally, several other revenue sources such as fines for traffic violations. Few of the impacted communities, however, attempted to quantify those minor losses.

## CHAPTER 7

### FINDINGS AND RECOMMENDATIONS

In our analysis, we found that the large-scale deployment of troops to the Persian Gulf had a measurably adverse impact on the level of economic activity in the seven impacted areas. The severity of the impact depended on such factors as the local effects of the national economic downturn and the percentage of area total earnings not spent locally as a result of the deployment. Many local enterprises were only affected moderately or not at all by the deployment. However, businesses that depend on military households, particularly on single personnel, for a large share of their sales were affected severely. Specific findings include the following:

- Local Area Economies:
  - ▶ Military personnel and their dependents constitute 43 percent of the population in the areas defined as most likely to be affected by the deployment.
  - ▶ Forty-one percent of all jobs are directly attributable to the presence of the military facility, while 43 percent of all area earnings are linked to the base. On a per capita basis, military personnel earnings are about the same as the earnings for the civilian population.
  - ▶ Survey data indicate that retail sales to military households constituted 25 percent of all sales and a third of all gross receipts in the impacted areas.
- Local Sales:
  - ▶ Prior to deployment, about a third of all retail and service establishments responding to the survey had sales to military households exceeding 40 percent of all their sales. These establishments absorbed most of the adverse effects associated with the deployment.
  - ▶ During the peak deployment period in early 1991, the population of the impacted areas declined by 17 percent. The average decline over the 6-month deployment was smaller.
  - ▶ Married personnel account for almost two-thirds of all military earnings. That condition tended to reduce the economic effect of the deployment

since most families of deployed personnel continued to live on or near the base.

- ▶ The financial condition of some business enterprises, particularly their ability to repay loans, deteriorated as a result of reduced sales attributable to deployment.
- ▶ Following deployment, retail sales to military households are estimated to have declined by 25 percent or more.
- ▶ On-base sales, particularly for fast food, also declined following deployment, but the stationing of reserve troops reduced the impact.
- ▶ About one out of six local businesses sell goods/services directly to the base. These sales declined, but not substantially following troop deployment.
- Housing:
  - ▶ The number of off-base residential units occupied by military households declined as single military personnel living off base and some families of deployed troops left the impacted areas temporarily. The demand for new housing also fell following deployment.
- Employment:
  - ▶ Local unemployment in the impacted areas rose 1.4 percentage points following deployment. About half of the increase was due to deployment; the balance, to the national economic downturn.
  - ▶ The sharpest deployment-related employment impact was in retail businesses, where jobs declined by 2.5 percent following deployment.
- Local government finances:
  - ▶ Local sales tax revenue declined by an average of 7.8 percent following deployment.
  - ▶ Utility system receipts during deployment declined as a result of electrical and water disconnections, as well as because utility demand was reduced due to the reduced population.

**APPENDIX A**

**STUDY METHODOLOGIES**

## **STUDY METHODOLOGIES**

### **STUDY OBJECTIVES**

This study has the following major objectives:

- To assess the economic impacts, such as changes in economic activity and employment that were experienced by local communities as a result of Operation Desert Shield/Desert Storm deployments
- To survey businesses in the vicinity of the selected bases and estimate the type and severity of these impacts
- To determine whether an economic upturn accompanied the return of the troops
- To assess the implications of these findings on future military deployments.

### **SURVEY OF LOCAL BUSINESSES**

For local business enterprises in each of the impacted areas (except Twentynine Palms), we prepared similar survey instruments that included questions on the characteristics of their business, sales volume, number of employees, and general financial conditions prior to and during the deployment period.<sup>1</sup> In most instances, the surveys were distributed and collected by the local Chamber of Commerce and the results were coded and tabulated at the Logistics Management Institute.

### **ESTIMATING CHANGES IN SALES**

Changes in retail sales were examined using three methods. First, we estimated the share of total military household earnings typically allocated for the purchase of retail goods. For that estimate, we calculated military household earnings not available for local consumption as a result of deployment; we based that calculation on the earnings of single personnel who were deployed, the families who left the area temporarily after a family member deployed, and purchases not made by military families of deployed troops even though those families remained in the impacted area. Second, we reviewed state sales tax records and determined changes

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<sup>1</sup>Six of the seven locations participated in the survey. Twentynine Palms was excluded because of the small number of businesses in the area.

in retail sales at the state and impacted area level in the period prior to, during, and following troop deployment. Third, we asked retail merchants to specify the percentage change in sales on a monthly basis for periods prior to and during deployment. We received full or partial responses to the survey from 740 business enterprises.

We followed a similar approach in estimating the impact of deployment on local unemployment and employment levels by sector. We used state employment data to compare on a monthly basis changes in employment, particularly retail sales and services, as reported by survey respondents.

These three methodologies would be expected to yield roughly similar results if the survey respondents were representative of all businesses. We recognize, however, that the respondents are not likely to be a random representation of all local enterprises. Businesses that were substantially affected by the deployment tended to respond to the survey, while those affected only marginally or not at all were less represented. Both the surveys and state records are somewhat limited in that the data do not distinguish between changes in economic activity caused by deployment and those caused by other changes in the local or national economy. To estimate the magnitude of these variations, we compared changes in local sales and employment data with statewide statistics. Using this approach, we were able to isolate the effects of deployment from effects of the national recession.

#### **CHARACTERISTICS OF SURVEYED BUSINESS ENTERPRISES**

Over half of all businesses that responded to the survey were corporations, about one-third were sole proprietorships, and the others were partnerships. The respondents comprised all categories of mostly private-business concerns, including large numbers of financial institutions, eating and drinking places, real estate rentals, and auto dealers. The vast majority were well established — six out of seven were in business for more than 3 years. The average business respondent had sales of about \$1 million annually and employed (full or part time) about 19 people. However, a substantial proportion of businesses had sales below \$500,000. As such, survey respondents included both very small and large enterprises and tended to be representative of all local business firms.

## ESTIMATING SALES TO MILITARY HOUSEHOLDS – METHODOLOGY

We estimated sales to military households as a share of all area sales by first calculating total income in the impacted area. These data were tabulated by adjusting Bureau of Economic Analysis 1989 county-level data to 1990 estimates. Total retail sales were estimated from two sources: *1987 Census of Retail Trade*,<sup>2</sup> which includes both taxable and nontaxable (on-base) sales, and 1990 taxable retail sales from state records. The 1987 Census was adjusted to 1990 prices and changes in population at the county and municipal level. These records were available for all seven impacted areas, with the exception of Fort Campbell does not keep sales records at the local level. Income of military households was calculated from military pay scales, base records, and previous studies of military household earnings.

TABLE A-1

### COMPARATIVE IMPACT OF DEPLOYMENTS ON EARNINGS AND LOCAL PURCHASES

Location	Total number deployed	Total annual estimated personal income in the local economy	Total estimated loss to local economy	Percentage of total annual area earnings
Fort Stewart	11,966	\$501.0	\$139.3	14.0%
Camp Lejeune	41,587	1,525.2	119.7	8.0
Fort Hood	25,000	3,279.0	146.0	4.5
Twentynine Palms	4,387	573.0	28.5	5.0
Camp Pendleton	21,000	2,599.3	139.5	5.5
Fort Campbell	18,076	2,096.2	90.2	4.5
Fort Bragg	30,500	3,612.0	143.5	4.0
Total	152,516	\$14,185.7	\$806.7	—
Average per location	21,788	2,026.5	115.2	6.5

**Notes:** Total for the 6-month period of deployment, September 1990 through February 1991. For more detailed data, see Appendix A (Table A-4).

<sup>2</sup>This is the most comprehensive source for examining retail trade at the city and county levels. It is published every 5 years by the U.S. Bureau of the Census; thus, the 1987 volume was the most recent at the time of our study.



In the absence of other factors, one would expect a high correlation between income and purchases. Thus, were military personnel to comprise 50 percent of all income in the area, they would also be likely to purchase 50 percent of all goods. However, two adjustments are necessary in dealing with military families. First, most single military personnel spend a higher portion of their income in the local economy on nonhousing goods and services because many of their expenses are lower than those incurred by married householders living off base. Second, to estimate expected purchases by military households in the private economy, we adjusted potential off-base purchasing downward to exclude on-base purchases. Those purchases, mostly at the Post Exchange (PX) and commissary are typically about 35 percent of all military purchases. As a result of the large retiree population, we estimate that 20 percent to 25 percent of all on-base purchases are by these households and reserve units, the balance by active personnel.

Although some services are provided on base, other services utilized by the military, such as auto repair and dry cleaning, are offered primarily in the private sector. Therefore, the same approach can be applied to estimate the value of off-base services purchased by military households in the private economy as applied to retail sales. However, no data are available to quantify the value of services received by military personnel on base that substitute for off-base purchases, such as medical care. Nonetheless, it is evident that, for most off-base providers of personal and repair services, sales would decline roughly in proportion to retail sales declines.

## **APPENDIX B**

### **THE ROLE OF MILITARY INSTALLATIONS IN LOCAL AREA ECONOMIES**

**Supporting Tables and Figures to Chapter 2**

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# THE ROLE OF MILITARY INSTALLATIONS IN LOCAL AREA ECONOMIES

TABLE B-1

## SHARE OF LOCAL AREA POPULATION, JOBS, AND EARNINGS - 1990

Category	Population <sup>a</sup>	Percentage	Number of jobs <sup>a</sup>	Percentage	Total annual earnings <sup>a</sup> (\$ millions)	Percentage
Fort Stewart						
Military	33,358	64.4%	14,787	59.5%	\$295.7	63.9%
Civilian - on base	5,814	11.2	3,230	13.0	68.5	14.8
Civilian - other	12,631	24.4	6,836	27.5	98.6	21.3
Area total	51,803	100.0	24,853	100.0	462.8	100.0
Camp Lejeune						
Military	85,026	56.7	42,079	52.9	819.9	60.0
Civilian - on base	8,217	5.5	4,690	5.9	88.7	6.5
Civilian - other	56,594	37.8	32,820	41.2	456.6	33.5
Area total	149,837	100.0	79,589	100.0	1,365.2	100.0
Fort Hood						
Military	79,778	31.2	35,743	32.7	697.7	29.0
Civilian - on base	9,163	3.6	3,916	3.6	93.0	3.9
Civilian - other	166,360	65.2	69,484	63.7	1,610.5	67.1
Area total	255,301	100.0	109,143	100.0	2,401.2	100.0
Twentynine Palms						
Military	20,826	45.2	11,237	47.2	229.3	50.9
Civilian - on base	2,642	5.7	1,258	5.3	29.9	6.6
Civilian - other	22,654	49.1	11,327	47.5	191.8	42.5
Area total	46,122	100.0	23,822	100.0	451.0	100.0
Camp Pendleton						
Military	59,073	35.8	36,000	39.4	770.8	35.7
Civilian - on base	6,517	3.9	4,200	4.6	99.8	4.6
Civilian - other	99,423	60.3	51,203	56.0	1,289.5	59.7
Area total	165,013	100.0	91,403	100.0	2,160.1	100.0
Fort Campbell						
Military	52,620	31.0	22,218	25.7	447.7	29.3
Civilian - on base	8,757	5.2	4,170	4.8	86.4	5.7
Civilian - other	108,062	63.8	60,024	69.5	993.4	65.0
Area total	169,439	100.0	86,412	100.0	1,527.5	100.0
Fort Bragg						
Military	99,635	36.3	44,800	33.5	916.5	32.1
Civilian - on base	8,379	3.1	4,200	3.2	119.4	4.2
Civilian - other	166,552	60.6	84,640	63.3	1,821.9	63.7
Area total	274,566	100.0	133,640	100.0	2,857.8	100.0

<sup>a</sup> Excludes income other than earnings (except military allowances) such as transfer payments, dividends, and rents. Nonmilitary job and earnings estimates are derived from Bureau of Economic Analysis data.

**TABLE B-2**  
**ESTIMATED SALES TO MILITARY HOUSEHOLDS — 1990**  
**(\$ Millions)**

Military personnel purchases	Fort Stewart	Camp Lejeune	Fort Hood	Twenty-nine Palms	Camp Pendleton
Estimated total personal income (local area)	\$501.0	\$1,525.2	\$3,279.0	\$573.0	\$2,599.3
Estimated total retail sales	177.0	650.6	1,314.0	204.5	820.0
Expected military personnel purchases	105.3	351.4	312.7	85.7	242.7
Percentage of total	59.5%	54.0%	23.8%	41.9%	29.6%
Plus: adjustment for single personnel (15 percent)	7.7	23.6	16.8	7.7	16.7
Less: PX and commissary purchases (households)	36.4	86.1	132.8	27.8	95.6
Purchases by military in private economy					
Annually	76.6	288.9	196.7	65.6	163.8
Monthly	6.4	24.1	16.4	5.5	13.7
Percentage of total	43.3%	44.4%	15.0%	32.1%	20.0%

Military personnel purchases	Fort Campbell	Fort Bragg	Total	Average
Estimated total personal income (local area)	\$2,096.2	\$3,612.0	\$14,185.7	\$2,026.5
Estimated total retail sales	908.3	1,809.0	5,883.5	840.5
Expected military personnel purchases	218.0	512.1	1,827.9	261.1
Percentage of total	24.0%	28.3%	—	37.3%
Plus: adjustment for single personnel (15 percent)	10.3	50.8	133.6	19.1
Less: PX and commissary purchases (households)	79.2	179.2	637.1	91.0
Purchases by military in private economy				
Annually	149.1	332.9	1,273.6	181.9
Monthly	12.4	27.7	106.1	15.2
Percentage of total	16.4%	18.4%	21.6%	21.6%

Note: PX = post exchange.

TABLE B-3

## ESTIMATED TOTAL MILITARY PERSONNEL PAYROLLS - 1990

Category	Fort Stewart	Camp Lejeune	Fort Hood	Twentynine Palms	Camp Pendleton
Single	5,914	21,362	15,727	6,877	19,440
Married	8,873	20,717	20,016	4,359	16,560
Subtotal	14,787	42,079	35,743	11,236	36,000
Married - spouse working	(2,662)	(6,912)	(8,006)	(1,526)	(11,592)
Second job holders	(700)	(1,683)	(1,429)	(337)	(1,800)
Total	14,787	42,079	35,743	11,236	36,000
Total annual earnings					
Single (\$)	100.5	363.2	267.4	113.9	340.2
Married (\$)	195.2	455.8	430.3	99.0	430.6
Subtotal (\$)	295.7	819.0	697.7	212.9	770.8
Married - spouse working (\$)	28.0	65.7	77.0	14.7	139.4
Second job holders (\$)	4.2	8.4	7.1	1.7	11.3
Total (\$)	327.9	893.1	781.8	229.3	921.5

Category	Fort Campbell	Fort Bragg	Total	Average	Percentage
Single	9,595	17,920	96,835	13,834	46.6%
Married	13,781	26,880	111,186	15,884	53.4
Subtotal	23,376	44,800	208,021	29,717	100.0
Married - spouse working	(4,823)	(10,752)	(46,273)	(6,610)	(41.6)
Second job holders	(935)	(1,792)	(8,676)	(1,239)	(4.2)
Total	23,376	44,800	208,021	29,717	100.0
Total annual earnings					
Single (\$)	158.3	338.6	1,682.1	240.3	35.9
Married (\$)	296.3	577.9	2,485.1	355.0	53.0
Subtotal (\$)	454.6	916.5	4,167.2	595.3	88.9
Married - spouse working (\$)	45.8	97.0	467.6	66.8	10.0
Second job holders (\$)	8.4	9.0	50.1	7.2	1.1
Total (\$)	508.8	1,022.5	4,684.9	669.3	100.0

Note: Numbers in parentheses are not included in the total

TABLE B-4

## COMPARATIVE IMPACT OF DEPLOYMENTS ON EARNINGS AND LOCAL PURCHASES

Category	Fort Stewart	Camp Lejeune	Fort Hood	Twentynine Palms	Camp Pendleton
Number deployed					
Single	4,786	21,112	11,000	2,685	11,340
Married	7,180	20,475	14,000	1,702	9,660
Subtotal	11,966	41,587	25,000	4,387	21,000
Married — spouse left area	1,200	161	2,900	275	1,561
Married — spouse working	210	48	290	64	721
Second job holders	500	1,663	1,000	132	1,050
Total	—	—	—	—	—
Estimated total lost earnings					
Single (\$)	81.4	97.0	93.5	22.3	99.2
Married (\$)	31.6	18.3	23.1	2.9	18.8
Subtotal (\$)	113.0	115.3	116.6	25.2	118.0
Married — spouse left area (\$)	21.1	1.7	25.5	2.7	13.9
Married — spouse working (\$)	2.2	0.3	1.4	0.3	4.3
Second job holders (\$)	3.0	2.4	2.5	0.3	3.3
Total (\$)	139.3	119.7	146.0	28.5	139.5

Category	Fort Campbell	Fort Bragg	Total	Average	Percentage
Number deployed					
Single	7,007	12,200	70,130	10,019	46.0%
Married	11,069	18,300	82,386	11,769	54.0
Subtotal	18,076	30,500	152,516	21,788	100.0
Married — spouse left area	720	700	7,517	1,074	—
Married — spouse working	85	70	1,488	213	—
Second job holders	766	1,220	6,331	904	—
Total	—	—	—	—	—
Estimated total lost earnings					
Single (\$)	63.6	103.7	560.7	80.1	69.5
Married (\$)	17.9	30.1	142.7	20.4	17.7
Subtotal (\$)	81.5	133.8	703.4	100.5	87.2
Married — spouse left area (\$)	6.4	6.2	77.5	11.1	9.6
Married — spouse working (\$)	0.4	0.4	9.3	1.3	1.2
Second job holders (\$)	1.9	3.1	16.5	2.4	2.0
Total (\$)	90.2	143.5	806.7	115.2	100.0



**TABLE B-5**  
**COMPARISON OF 1990 AREA PERSONAL INCOME ESTIMATES**  
(\$ millions)

Category	Fort Stewart	Camp Lejeune	Fort Hood	Twentynine Palms	Camp Pendleton
Federal civilian payrolls	\$72.8	\$88.7	\$93.0	\$29.9	\$99.8
Other Federal employee income	8.7	10.6	20.4	6.6	22.0
Less residency adjustments	(12.2)	(7.8)	(6.3)	(1.1)	(24.4)
Total area Federal income	69.3	91.5	107.1	35.4	97.4
Military payrolls	295.7	818.0	697.7	213.0	770.8
Other military income	14.8	32.8	34.9	10.7	38.5
Less residency adjustment	(12.4)	(25.6)	(7.3)	(2.2)	(161.9)
Total area military income	298.1	825.2	725.3	221.5	647.4
Civilian non-Federal earnings	98.6	456.6	1,610.5	208.2	894.4
Other income	35.0	150.0	833.5	105.7	465.1
Subtotal	133.6	606.6	2,444.0	313.9	1,359.5
Total	501.0	1,523.3	3,276.4	570.8	2,104.3

Category	Fort Campbell	Fort Bragg	Total	Average	Percentage
Federal civilian payrolls	\$86.4	\$119.4	\$590.0	\$84.3	4.3%
Other Federal employee income	20.6	26.3	115.2	16.5	0.8
Less residency adjustments	(5.4)	(7.9)	(65.1)	(9.3)	(-0.5)
Total area Federal income	101.6	137.8	640.1	91.4	4.7
Military payrolls	447.7	916.5	4,159.4	594.2	30.4
Other military income	22.4	45.8	199.9	28.6	1.5
Less residency adjustment	(9.4)	(28.9)	(247.7)	(35.4)	(-1.8)
Total area military income	460.7	933.4	4,111.6	587.4	30.0
Civilian non-Federal earnings	993.4	1,821.9	6,083.6	869.1	44.5
Other income	540.5	718.9	2,848.7	407.0	20.8
Subtotal	1,533.9	2,540.8	8,932.3	1,276.0	65.3
Total	2,096.2	3,612.0	13,684.0	1,954.9	100.0

Notes: Numbers in parentheses are not included in the total.

TABLE B-6

## TYPE OF OWNERSHIP OF BUSINESS ENTERPRISES RESPONDING TO SURVEY

Sector	Sole proprietorship	Partnership	Corporation	Other	Total
Retail	29%	9%	61%	0%	100%
Services	37	13	49	0	100
Real estate rentals	34	16	50	0	100
All others	29	8	60	3	100
Total	242	84	415	5	—
Percentage	32%	11%	56%	1%	—

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** A total of 746 businesses responded to this question.

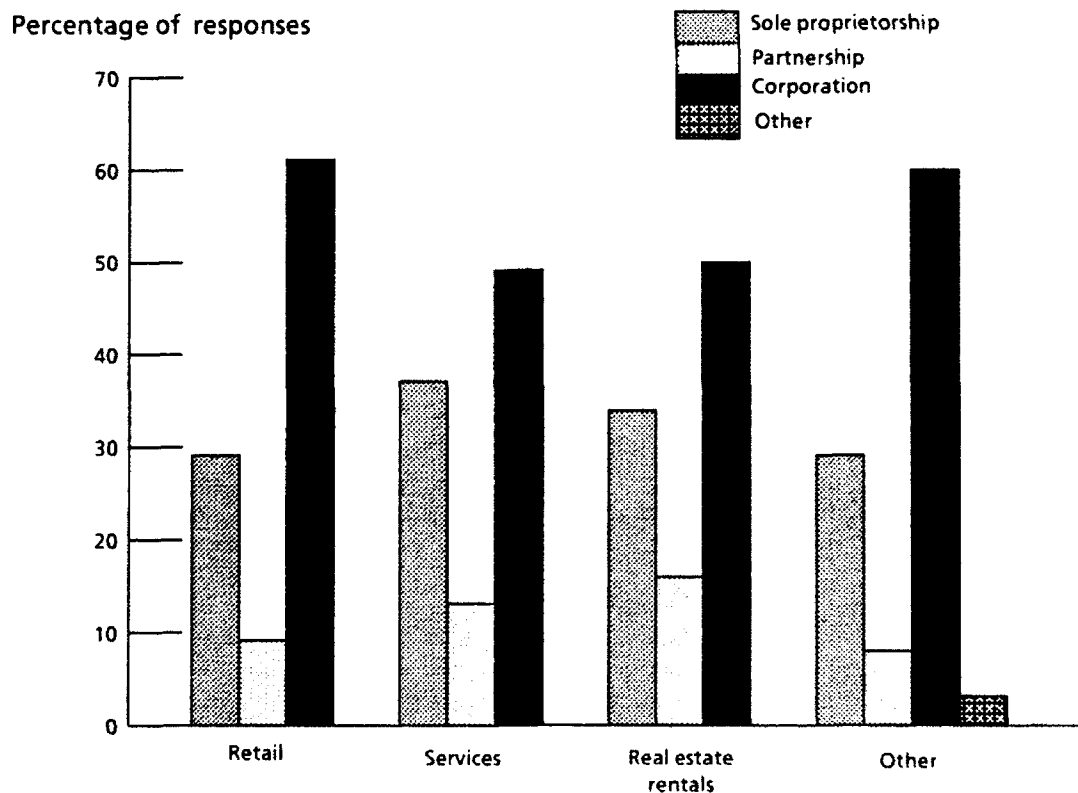


FIG. B-1. TYPE OF OWNERSHIP OF BUSINESS ENTERPRISES RESPONDING TO SURVEY

TABLE B-7

## BUSINESS VOLUME IN ANNUAL SALES OF ENTERPRISES RESPONDING TO SURVEY

Sector	Less than \$100,000	\$100,000 to \$500,000	\$500,000 to \$2 million	Over \$2 million	Total
Retail	10%	34%	34%	22%	100%
Services	24	44	28	5	100%
Real estate rentals	48	26	17	9	100%
All others	13	27	27	34	100%
Total	128	245	201	128	—
Percentage	18%	35%	29%	18%	—

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** A total of 702 businesses responded to this question.

TABLE B-8

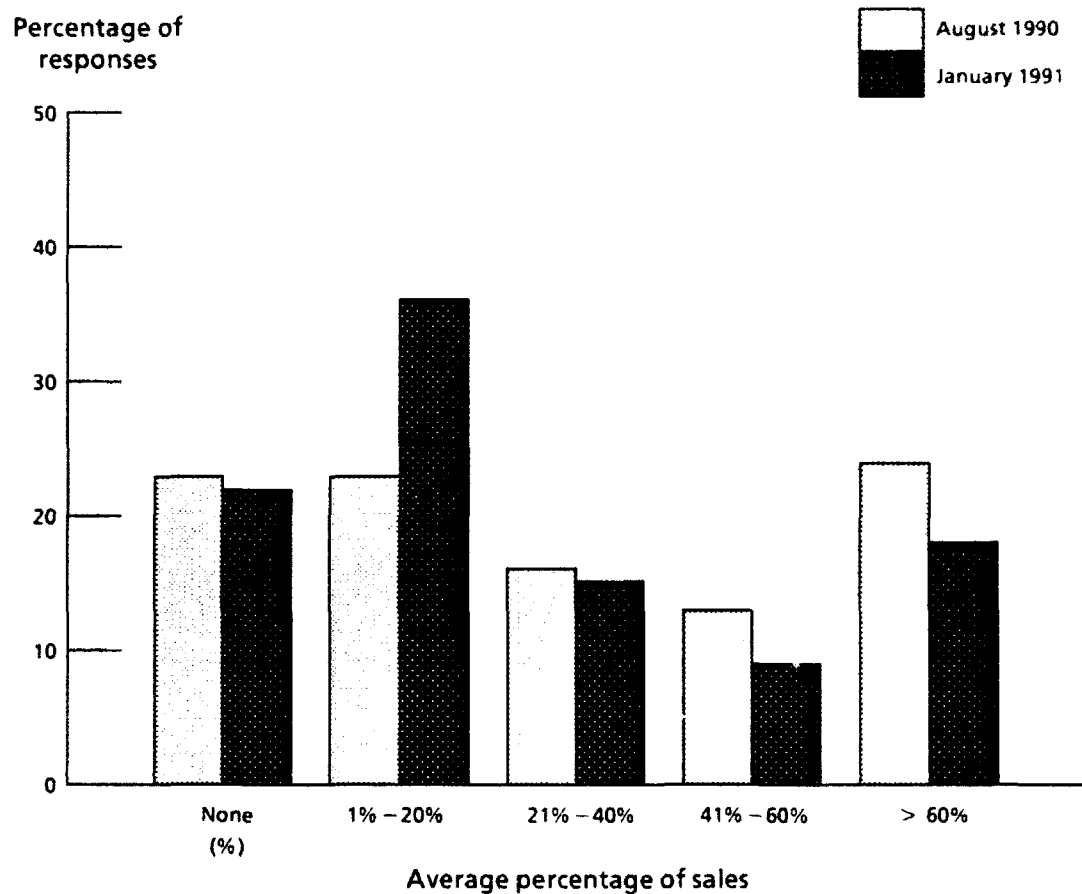
## SURVEY RESPONSES AS A PERCENTAGE OF TOTAL ESTABLISHMENTS

Category	Number of responses (Sep. 1990)	Number of establishments (1987 Census)	Percentage of responses
Retail sales			
Building and hardware	29	212	14%
Department and variety	11	112	10
Food stores	19	495	4
Automobile sales	28	440	6
Furniture	23	368	6
Eating and drinking	49	1,159	4
Apparel	14	419	3
Other retail	83	1,126	7
Total retail sales	256	4,331	6
Services			
Personal	32	496	6
Automotive <sup>a</sup>	40	412	10
Professional services	55	725	8
Lodging	13	127	10
Amusement/recreation	11	157	7
Education	4	N/A	N/A
Other services	93	1,250	7
Total services	248	3,170	8%
Other enterprises			
Real estate rentals	64	N/A	—
Real estate sales	35	N/A	—
Manufacturing	22	N/A	—
Wholesale trade	15	N/A	—
Finance/insurance	61	N/A	—
Landscape/construction	19	N/A	—
Communications/transportation/utilities	27	N/A	—
Other	5	N/A	—
Total other	248	N/A	—

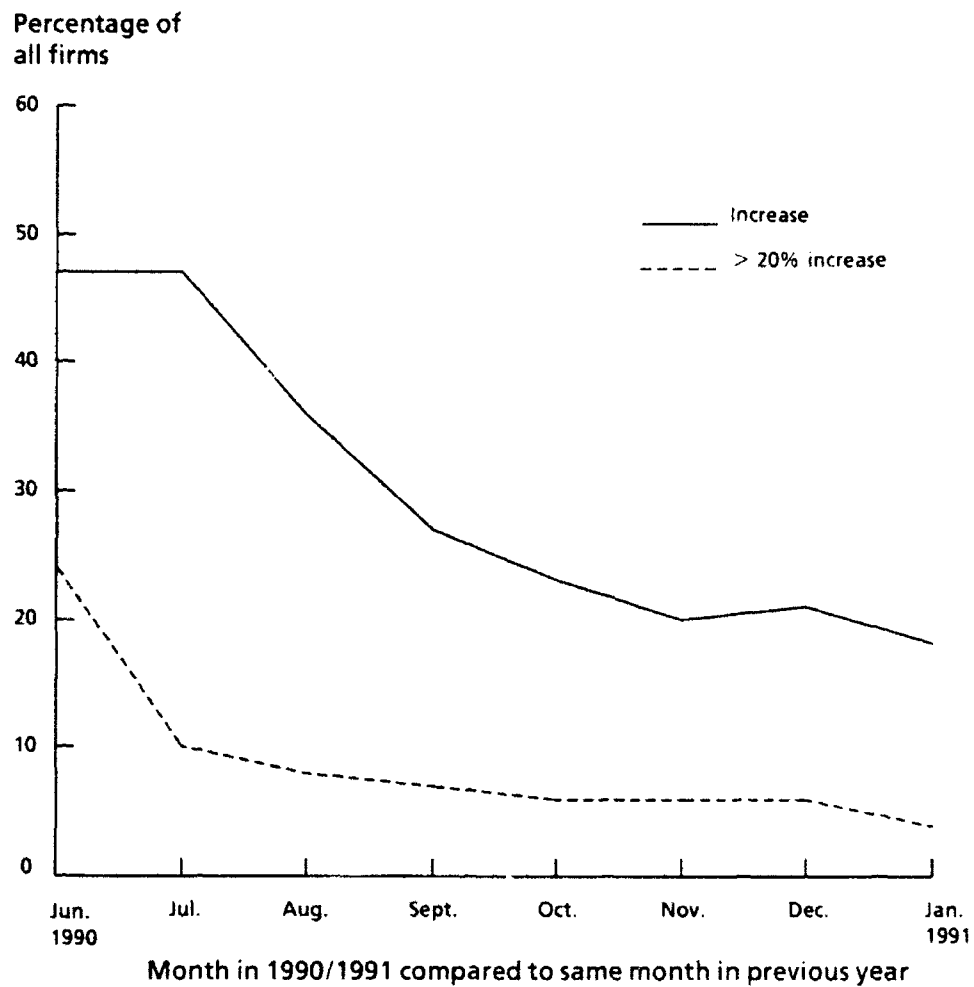
**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Notes:** A total of 752 businesses responded to this question. N/A = not available.

<sup>a</sup> Includes enterprises selling as well as repairing automobile parts.

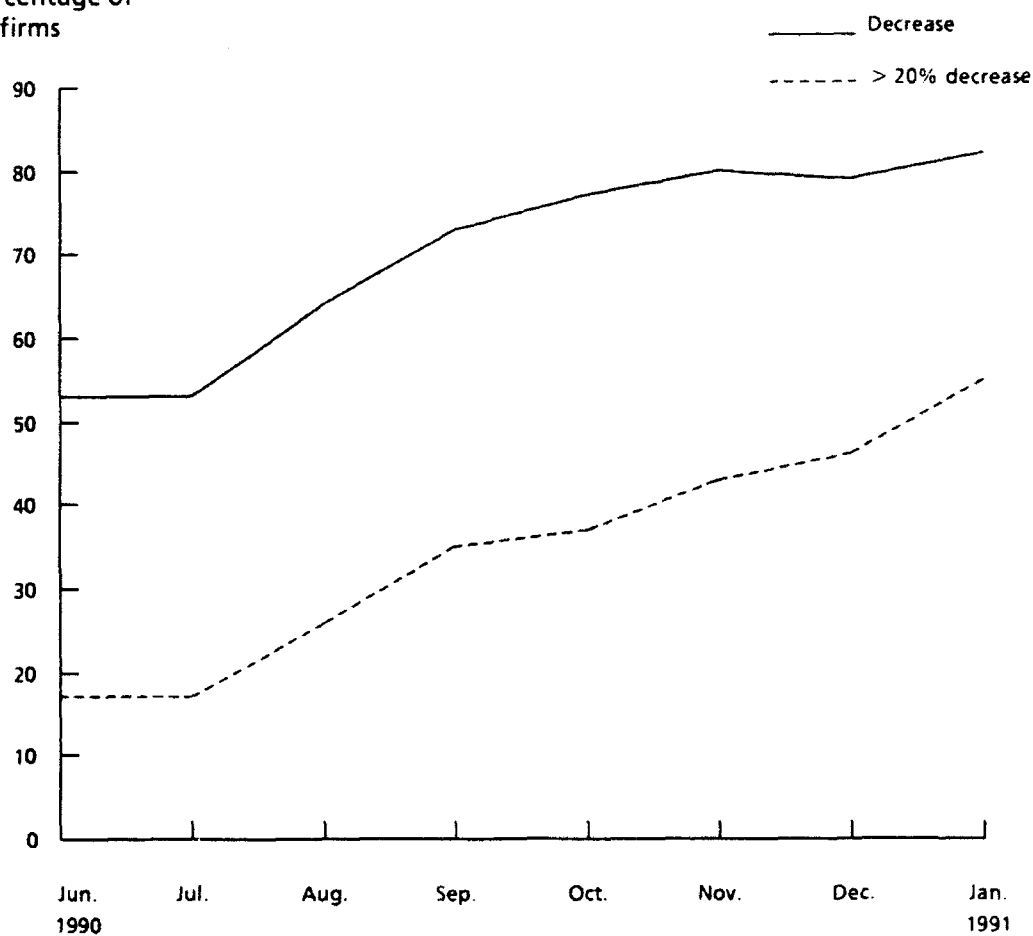


**FIG. B-2. AVERAGE PERCENTAGE OF SALES TO MILITARY PERSONNEL AND DEPENDENTS**  
(Based on survey results)



**FIG. B-3. PERCENTAGE OF FIRMS WITH INCREASED SALES IN IMPACTED AREAS**  
(Based on survey results)

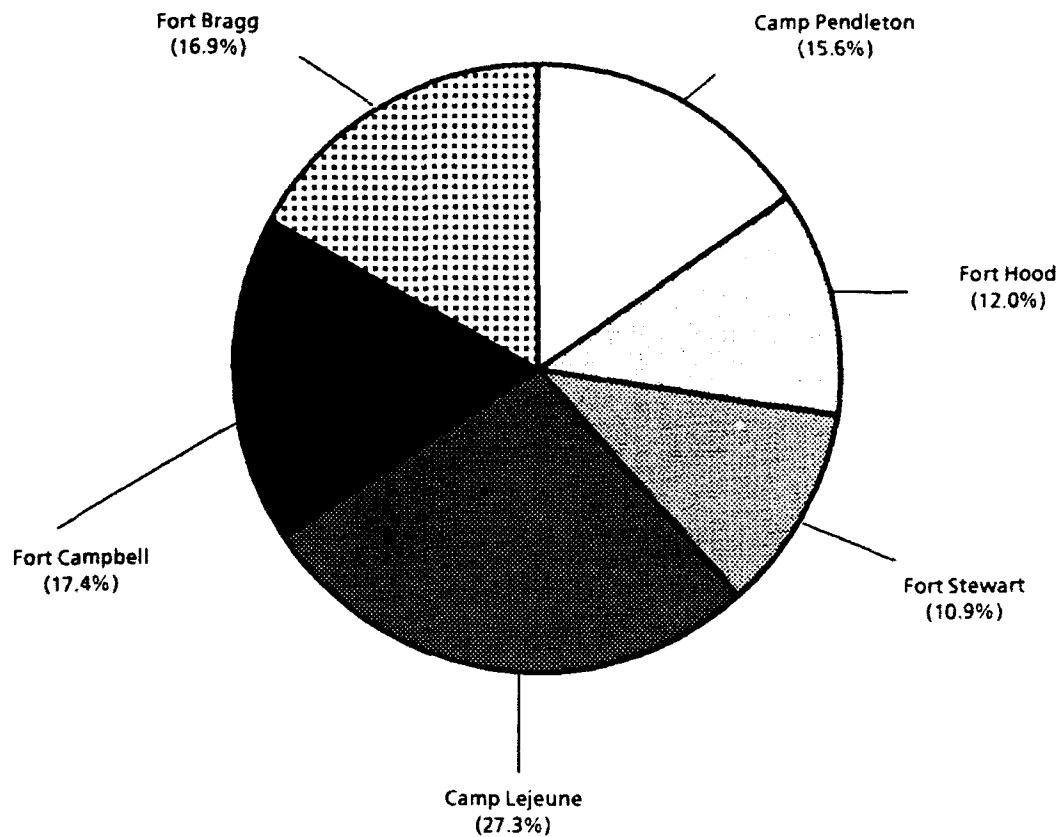
Percentage of  
all firms



Month in 1990/1991 compared to same month in previous year

**FIG. B-4. PERCENTAGE OF FIRMS WITH DECREASED SALES IN IMPACTED AREAS**

**(Based on survey results)**



**Note:** A total of 752 responses were received.

**FIG. B-5. BREAKDOWN OF SURVEY RESPONSES**



TABLE B-9

## YEARS IN BUSINESS OF ENTERPRISES RESPONDING TO SURVEY

Category	Total	Percentage
Less than 1 year	32	4.3%
1 to 2 years	56	7.6
2 to 3 years	44	5.9
More than 3 years	609	82.2
Total	741	100%

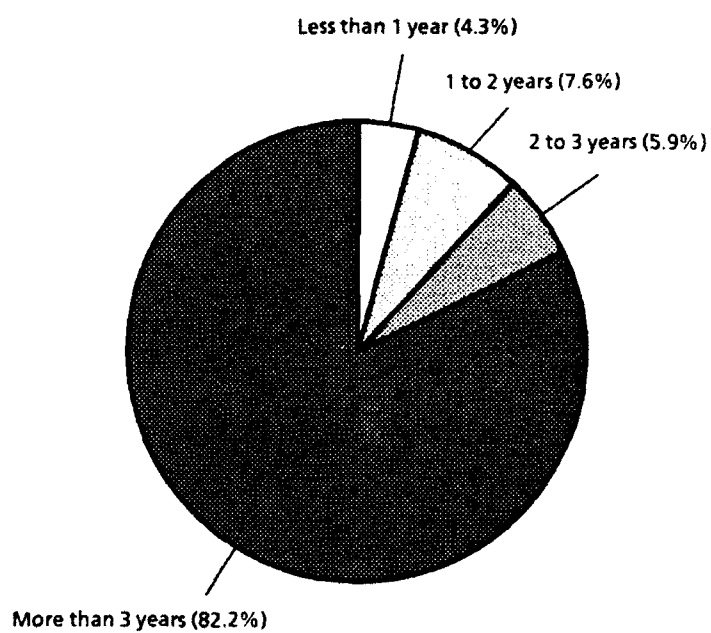
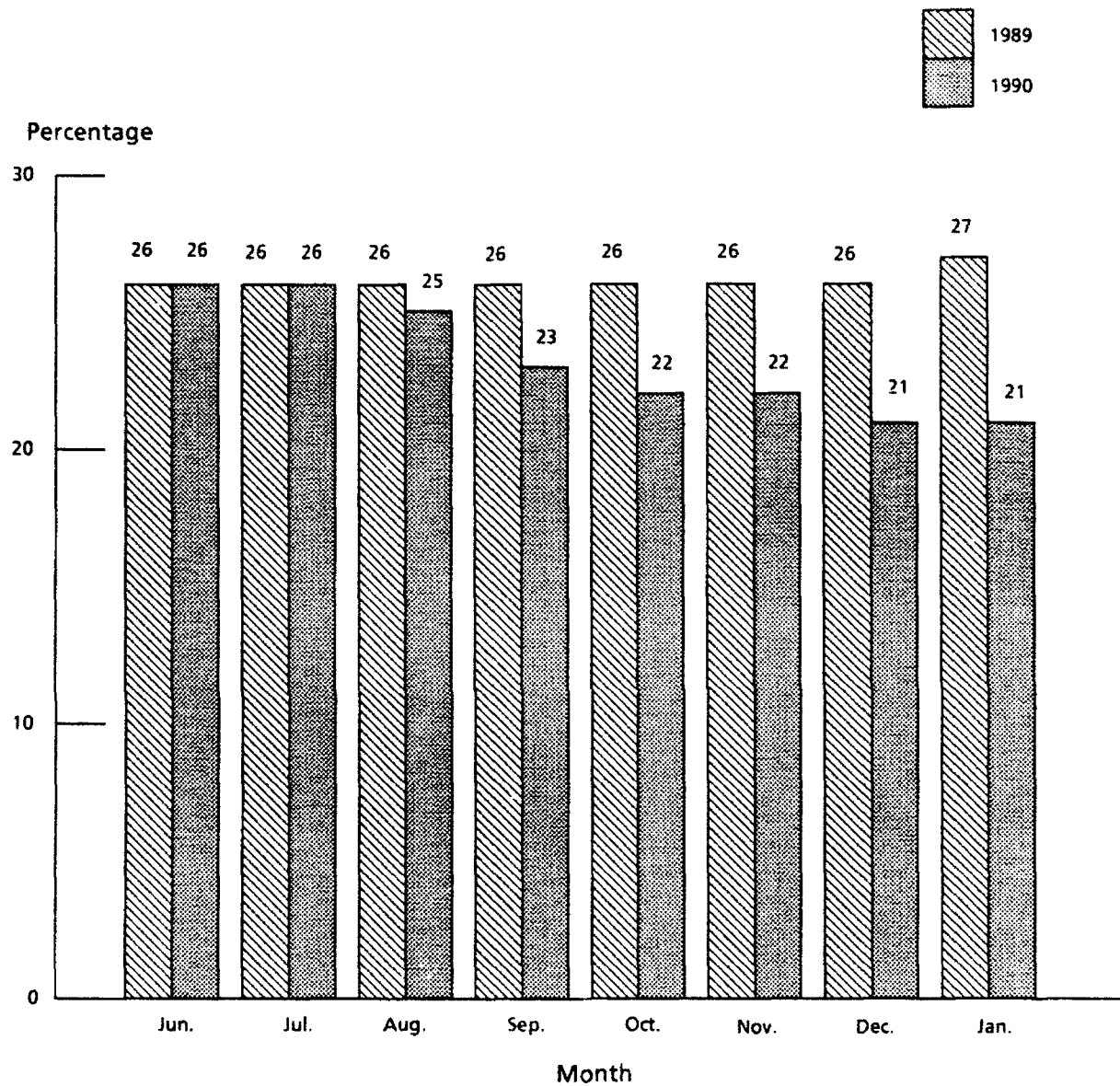


FIG. B-6. YEARS IN BUSINESS OF ENTERPRISES RESPONDING TO SURVEY

TABLE B-10

## PROPORTION OF ENTERPRISES SELLING DIRECTLY TO MILITARY INSTALLATIONS

Category	No sales	Monthly sales <\$25,000	Monthly sales \$26,000 to \$50,000	Monthly sales >\$50,000
August 1990				
Retail	78%	17%	3%	2%
Services	84	11	1	4
Real estate rentals	89	9	0	2
All others	89	0	1	1
Average	84	12	1	2
Number of enterprises	377	54	6	11
January 1991				
Retail	77%	21%	0%	2%
Services	86	10	2	2
Real estate rentals	91	7	0	1
All others	90	9	0	1
Average	85	58	1	1
Number of enterprises	381	13	3	6



**FIG. B-7. PERCENTAGE OF SALES TO MILITARY PERSONNEL**

**(Based on survey data)**

**APPENDIX C**

**IMPACT OF DEPLOYMENT ON RETAIL SALES**

**Supporting Tables to Chapter 3**

## TABLES

	<u>Page</u>
C-1. Post Exchange Sales .....	C-3
C-2. Commissary Sales .....	C-4
C-3. Other Nonappropriated Fund Activities .....	C-5

# **IMPACT OF DEPLOYMENT ON RETAIL SALES**

**TABLE C-1**

## **POST EXCHANGE SALES**

**(Index July 1990 = 100)**

Time	Camp Lejeune	Fort Campbell	Fort Stewart	Fort Hood	Camp Pendleton	Twenty- nine Palms	Average
Predeployment							
May 1990	106	105	N/A	101	101	121	107
June	107	105	N/A	106	103	106	105
July	100	100	100	100	100	100	100
Deployment							
August	100	118	110	110	105	110	109
September	89	99	92	108	103	70	94
October	88	97	95	101	91	73	91
November	82	104	103	85	95	82	92
December	113	99	98	96	99	91	97
January 1991	N/A	99	99	101	72	55	85
January 1991/ January 1990	N/A	103	N/A	86	90	76	89

*Note:* N/A = not available.

**TABLE C-2**  
**COMMISSARY SALES**  
(Index July 1990 = 100)

Time	Camp Lejeune	Fort Campbell	Fort Stewart	Fort Hood	Camp Pendleton	Twenty- nine Palms	Average
Predeployment							
May 1990	106	108	N/A	101	101	119	107
June	107	111	N/A	106	103	118	109
July	100	100	100	100	100	100	100
Deployment							
August	100	117	110	110	105	91	105
September	89	99	92	108	103	113	101
October	88	97	95	101	91	100	97
November	82	104	103	95	95	102	95
December	113	99	99	96	99	91	99
January 1991	N/A	99	98	101	72	101	94
January 1991/ January 1990	N/A	99	N/A	86	111	96	98

Note: N/A = not available.

**TABLE C-3**  
**OTHER NONAPPROPRIATED FUND ACTIVITIES**  
**(Index July 1990 = 100)**

Time	Fort Hood	Twenty-nine Palms	Fort Campbell	Camp Lejeune/ Onslow County	Camp Pendleton	Average
Predeployment						
January 1990	93	83	88	88	87	88
February	87	118	79	86	90	92
March	100	98	95	100	100	99
April	82	104	98	96	96	95
May	100	95	96	104	97	98
June	102	109	109	102	101	105
July	100	100	100	100	100	100
Deployment						
August	96	93	98	106	104	99
September	90	43	89	79	85	77
October	90	51	80	89	57	73
November	84	53	74	92	61	73
December	76	48	72	113	61	74
January 1991	N/A	47	77	N/A	47	57
January 1991/ January 1990	N/A	57	87	N/A	54	66

Note: N/A = not available.



**APPENDIX D**

**IMPACT OF DEPLOYMENT ON SERVICE  
AND OTHER NONRETAIL BUSINESSES**

**Supporting Tables to Chapter 4**

## TABLES

	<u>Page</u>
D-1. Change in Gross Receipts for Service Enterprises Before and During Deployment .....	D-3
D-2. Change in Sales Volume for Other Nonretail Enterprises Before and During Deployment .....	D-4
D-3. Ability to Meet Business Loan Payments .....	D-5
D-4. Problems with Loan Payments .....	D-5
D-5. Percent of Businesses Responding to Survey That Needed or Would Need Loans .....	D-6

# **IMPACT OF DEPLOYMENT ON SERVICE AND OTHER NONRETAIL BUSINESSES**

**TABLE D-1**

## **CHANGE IN GROSS RECEIPTS FOR SERVICE ENTERPRISES BEFORE AND DURING DEPLOYMENT**

Change period	Percentage decrease			No change	Percentage increase			Total
	Over 40	21 to 40	1 to 20		1 to 20	21 to 40	Over 40	
Before deployment (August 1990 compared to August 1989)	3%	13%	25%	34%	19%	5%	2%	100%
During deployment (November 1990 compared to November 1989) <sup>a</sup>	10	22	27	29	7	3	1	100
During deployment (January 1991 compared to January 1990) <sup>b</sup>	13	27	21	23	10	3	1	100

**Source:** Survey of local businesses: Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** Totals may not sum to 100 due to rounding.

<sup>a</sup> Does not include Fort Stewart.

<sup>b</sup> Does not include Fort Stewart and Fort Hood.

TABLE D-2

**CHANGE IN SALES VOLUME FOR OTHER NONRETAIL ENTERPRISES  
BEFORE AND DURING DEPLOYMENT**

Change period	Percentage decrease			No change	Percentage increase			Total
	Over 40	21 to 40	1 to 20		1 to 20	21 to 40	Over 40	
Before deployment (August 1990 compared to August 1989) <sup>a</sup>	9%	14%	23%	34%	17%	3%	1%	100%
During deployment (January 1991 compared to January 1990) <sup>b</sup>	31	19	16	22	9	3	1	100

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** Totals may not sum to 100 due to rounding.

<sup>a</sup> Does not include Fort Stewart.

<sup>b</sup> Does not include Fort Stewart and Fort Hood.

**TABLE D-3**

**ABILITY TO MEET BUSINESS LOAN PAYMENTS**

Sector	Percentage not able to pay
Retail	27%
Services	29
Real estate rentals	41
All others	18
Average	27

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** A total of 565 businesses responded to this question.

**TABLE D-4**

**PROBLEMS WITH LOAN PAYMENTS**

Sector	Immediately	Within 3 months	No problems	Total
Retail	27%	37%	36%	100%
Services	23	31	45	100
Real estate rentals	26	57	17	100
All others	22	25	54	100
Total	87	123	144	—
Average percentage	25%	35%	41%	—

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** A total of 354 businesses responded to this question.

TABLE D-5

**PERCENTAGE OF BUSINESSES RESPONDING TO SURVEY THAT NEEDED  
OR WOULD NEED LOANS**

Sector	Have loan	Will need loan immediately	Will need loan within 3 months	No need anticipated	Total
Retail	29%	9%	15%	46%	100%
Services	26	9	18	48	100
Real estate rentals	29	7	41	22	100
All others	23	7	14	56	100
Average	27%	8%	18%	47%	—
Total number of businesses	182	56	122	320	—

**Source:** Survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample.

**Note:** A total of 680 businesses responded to this question.

**APPENDIX E**

**IMPACT OF DEPLOYMENT ON JOBS**

**Supporting Table to Chapter 5**

## IMPACT OF DEPLOYMENT ON JOBS

TABLE E-1

### CHANGE IN CIVILIAN EMPLOYMENT BY SECTOR

Impacted area	Pre-deployment	Deployment	Percentage change	Post-deployment	Percentage change
<b>Retail Trade</b>					
Liberty County	1,968	1,768	- 10.2%	1,877	6.2%
Jacksonville MSA	9,367	9,030	- 3.6	9,203	1.9
Killeen-Temple MSA	16,700	16,550	- 0.9	16,370	- 1.1
Fayetteville MSA	23,805	23,350	- 1.9	24,190	3.6
<b>Total/Average</b>	<b>51,840</b>	<b>50,698</b>	<b>2.2%</b>	<b>51,640</b>	<b>1.9%</b>
<b>Services</b>					
Liberty County	1,098	946	- 13.8%	948 <sup>a</sup>	0.2%
Jacksonville MSA	4,673	4,890	6.8	4,765	- 4.5
Killeen-Temple MSA	17,537	17,350	- 1.0	17,833	2.8
Fayetteville MSA	16,095	16,065	- 0.4	15,720	- 2.1
<b>Total/Average</b>	<b>39,403</b>	<b>39,251</b>	<b>- 0.4%</b>	<b>39,266</b>	<b>0.04%</b>
<b>Manufacturing</b>					
Liberty County	724	697	- 3.7%	707	1.4%
Jacksonville MSA	2,790	2,497	- 10.5	2,283	- 8.6
Killeen-Temple MSA	8,633	8,750	1.4	8,833	1.0
Fayetteville MSA	12,940	12,515	- 3.3	12,885	3.0
<b>Total/Average</b>	<b>25,087</b>	<b>24,459</b>	<b>- 2.5%</b>	<b>24,708</b>	<b>1.0%</b>
<b>Government</b>					
Liberty County	5,273	5,240	- 0.6%	5,145	- 1.8% <sup>b</sup>
Jacksonville MSA	10,437	10,253	- 1.8	10,547	2.9
Killeen-Temple MSA	22,433	22,700	1.2	22,900	0.9
Fayetteville MSA	24,825	24,435	- 1.6	25,395	3.9
<b>Total/Average</b>	<b>62,968</b>	<b>62,628</b>	<b>- 0.5%</b>	<b>63,987</b>	<b>2.2%</b>

**Note:** MSA = Metropolitan Statistical Area.



**APPENDIX F**

**SAMPLE BUSINESS SURVEY**

## SAMPLE BUSINESS SURVEY

- (1) Type of ownership (check one):
- |                     |       |
|---------------------|-------|
| Sole proprietorship | _____ |
| Partnership         | _____ |
| Corporation         | _____ |
| Other               | _____ |
- (2) Type of business (check one): [All Sites]
- |  |       |
|--|-------|
| Construction/landscaping                         | _____ |
| Building/hardware/garden supplies                | _____ |
| Department/variety store                         | _____ |
| Food store                                       | _____ |
| Auto dealer and service station                  | _____ |
| Clothing and shoe store                          | _____ |
| Home furniture, furnishings, and appliances      | _____ |
| Eating and drinking place                        | _____ |
| Other retail/sporting goods                      | _____ |
| Personal service (beauty, barber, laundry, etc.) | _____ |
| Auto repair/auto parts                           | _____ |
| Other services                                   | _____ |
| Amusement/recreation (bowling, golf, etc.)       | _____ |
| Financial Institution/Insurance                  | _____ |
| Real estate sales                                | _____ |
| Professional services                            | _____ |
| Real estate rentals                              | _____ |
| Manufacturing                                    | _____ |
| Lodging  | _____ |
| Utilities/Communication/Transportation           | _____ |
| Wholesale trade                                  | _____ |
| Education  | _____ |
| Public Sector/Other                              | _____ |
- (3) Is the business a franchise?
- |     |       |
|-----|-------|
| Yes | _____ |
| No  | _____ |

**Source:** This is a sample of the survey of local businesses in Fort Stewart, Camp Lejeune, Fort Hood, Camp Pendleton, Fort Campbell, and Fort Bragg. Twentynine Palms was not included in the survey sample



(9) Percent of sales you estimate were to military personnel or their dependents:

Average		Average	
June 1989	_____ %	June 1990	_____ %
July 1989	_____ %	July 1990	_____ %
August 1989	_____ %	August 1990	_____ %
September 1989	_____ %	September 1990	_____ %
October 1989	_____ %	October 1990	_____ %
November 1989	_____ %	November 1990	_____ %
December 1989	_____ %	December 1990	_____ %
January 1990	_____ %	January 1991	_____ %

(10) Estimated direct sales to the military base (if any):

Average		Average	
June 1989	\$ _____	June 1990	\$ _____
July 1989	\$ _____	July 1990	\$ _____
August 1989	\$ _____	August 1990	\$ _____
September 1989	\$ _____	September 1990	\$ _____
October 1989	\$ _____	October 1990	\$ _____
November 1989	\$ _____	November 1990	\$ _____
December 1989	\$ _____	December 1990	\$ _____
January 1990	\$ _____	January 1991	\$ _____

(11) Will you need to or have you borrowed funds to meet operating expenses (payroll, taxes, utilities, rent, etc.) as a result of reduced sales?

\_\_\_\_\_ Have already borrowed funds  
 \_\_\_\_\_ Immediately  
 \_\_\_\_\_ In the next 1 to 3 months  
 \_\_\_\_\_ No need anticipated

(12) Current business debt (enter amount): Average bank loans \$ \_\_\_\_\_  
 Average other loans \$ \_\_\_\_\_

(13) Current monthly average business loan payments: \$ \_\_\_\_\_

(14) Single payment average business loans due within 12 months: \$ \_\_\_\_\_

(15a) Are you able to meet payments on business loans?

Yes \_\_\_\_\_  
No \_\_\_\_\_

If no, when do you anticipate payment problems meeting debt obligations  
(check one)?

\_\_\_\_\_ Immediately  
\_\_\_\_\_ In the Next 1 to 3 months  
\_\_\_\_\_ No problems

(15b) How are collections running (check one)?

\_\_\_\_\_ Excellent  
\_\_\_\_\_ Good  
\_\_\_\_\_ Fair  
\_\_\_\_\_ Poor  
\_\_\_\_\_ Very Poor

(16) If a deferment on bank payments loan were made available to you, would you:

\_\_\_\_\_ Use immediately  
\_\_\_\_\_ Like to have available  
\_\_\_\_\_ Not use

(17) What type of business account(s) do you have with your bank (check all that apply):

Checking \_\_\_\_\_  
Savings \_\_\_\_\_  
Loan \_\_\_\_\_

(18) Other comments about the effects of Desert Shield/Storm deployment on business.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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The large-scale movement of personnel from U.S. bases raised concerns that the deployments were significantly affecting local economies near some of the larger military bases. That concern led the Department of Defense, through the Office of Economic Adjustment, to examine the economic impacts of Operation Desert Shield/Desert Storm deployments on seven military installations: Fort Stewart, Ga.; Camp Lejeune and Fort Bragg, N.C.; Fort Hood, Tex.; Twentynine Palms and Camp Pendleton, Cal.; and Fort Campbell, Ky. We examined the economic conditions before, during, and after deployments from each of these locations. This report gives a collective assessment of the impacts experienced at these locations.

We found that the deployment of troops to the Persian Gulf had an adverse effect on the level of economic activity in all seven of the selected areas. The severity of that effect varied from site to site and was found to be largely dependent on such factors as the local effects of the national economic downturn and the percentage of area earnings attributable to military jobs.

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